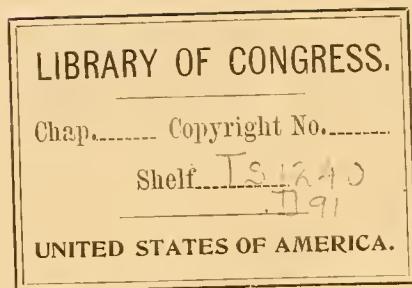
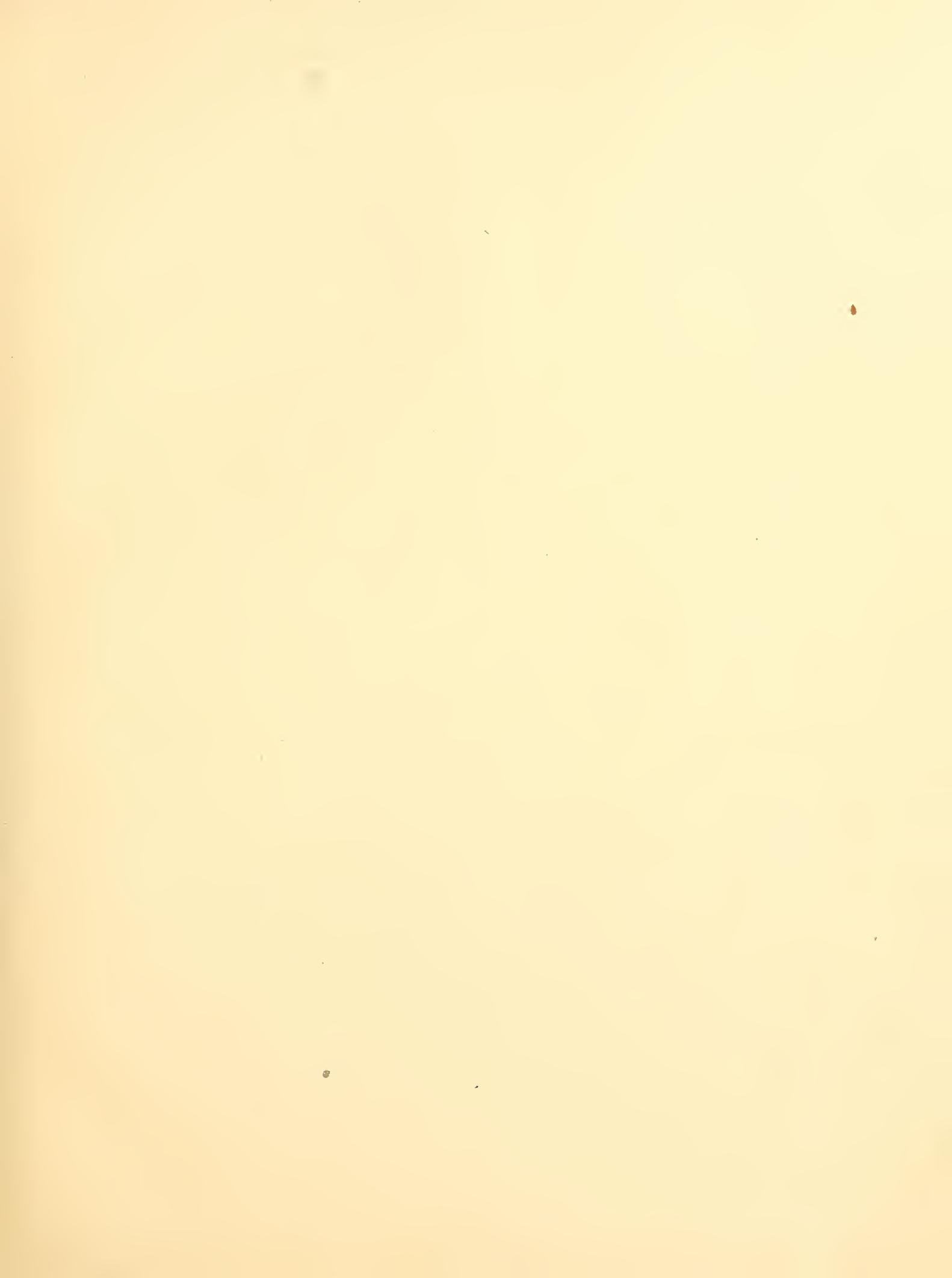


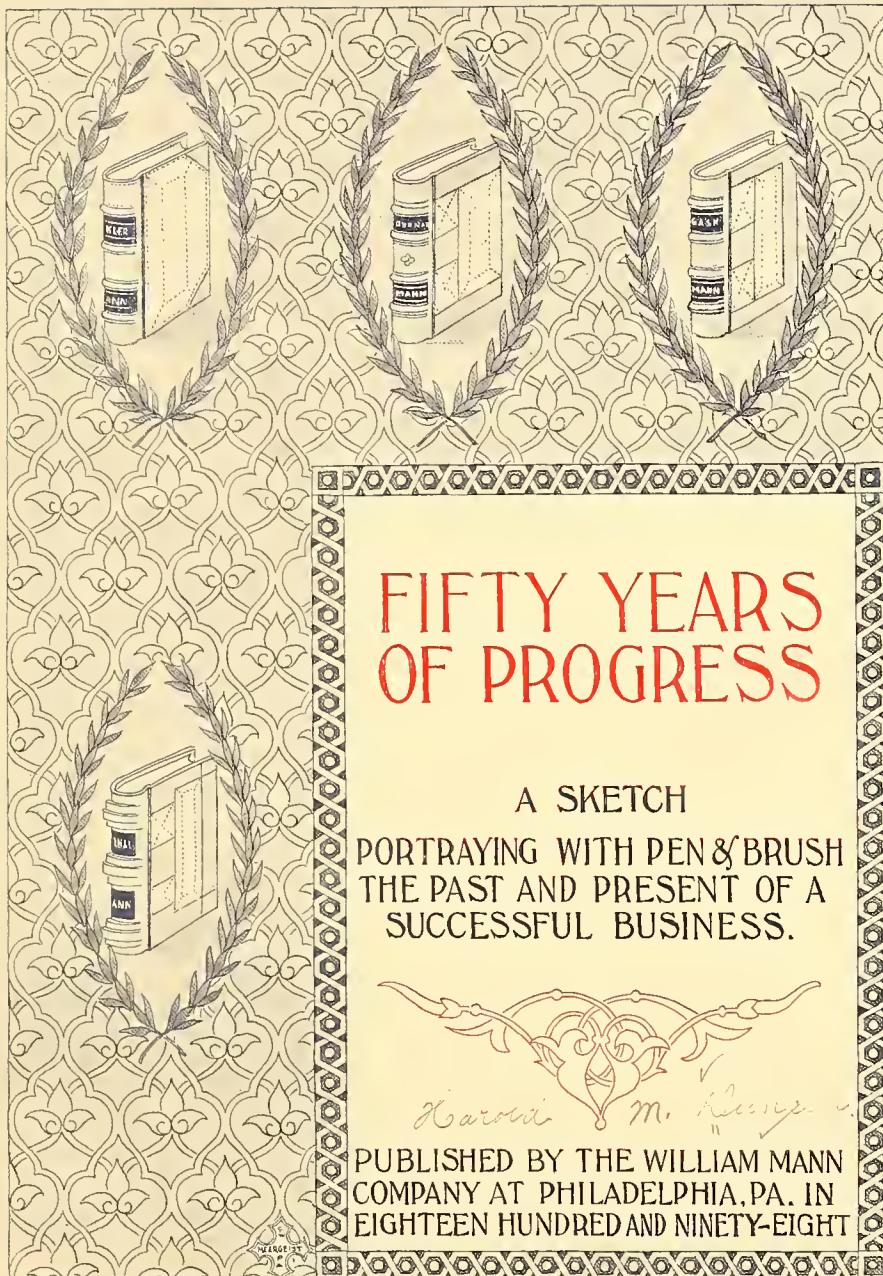


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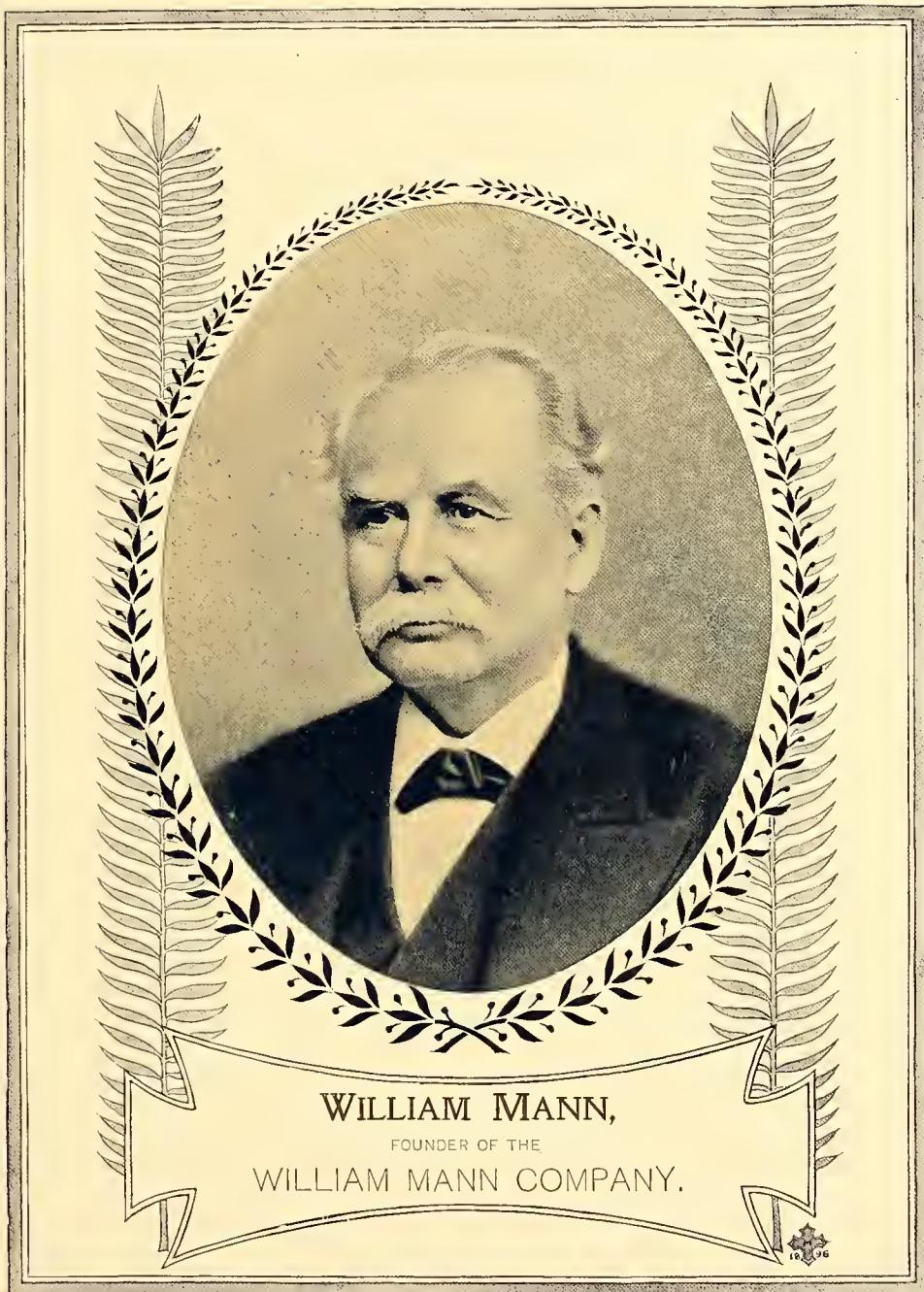
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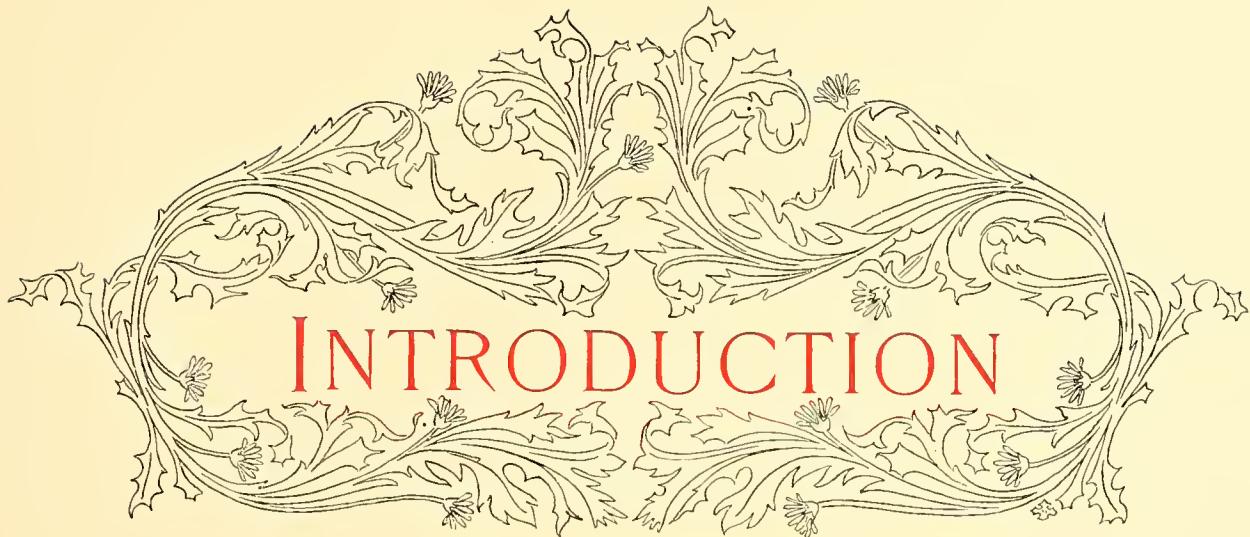


WILLIAM MANN,

FOUNDER OF THE

WILLIAM MANN COMPANY.

1896



INTRODUCTION

IN offering this volume to those friends and acquaintances of the commercial world with whom our relations at intervals during the past half-century have been so uninterruptedly pleasant, a few prefatory words appear desirable, if not to introduce the subject-matter, yet to outline the publishers' intention. Too frequently, however, is a preface the mere pretext for self-laudation, especially in books of industrial import dealing with the history of enterprises which it may be desired to commemorate. There is nothing—whether in statement or by implication—that we would more earnestly avoid.

The WILLIAM MANN COMPANY has completed the first fifty years of its existence as a business institution, in the course of which, under what is believed to have been a judicious and strictly honorable policy, it has developed with steady and progressive steps to a plane of commercial activity the horizon of which is relatively as great as the foundations of the business are secure. Just as in Nature, the slowest processes are those which culminate in greatest energy; so in the domain of Trade—the solidity of results requires

time in which to eventuate. As a proper tribute to the sagacity, courage and integrity of its revered founder — who died during 1881 — and as a memorial to the willing hands that assumed the duties he laid down, we have conceived the formation of a book, wherein the handicraft of the artist should supplement description of our establishment and the plain data of commercial achievement be enlivened by the skill of the photographer and the best possible results of typography and the allied arts. The text is more than a citation of bare facts; it is a portraiture of living processes, indexing the improvements of a half-century of experiment and liberal enterprise. During this time, facilities have exactly paralleled Invention: as machinery, appliances or processes have appeared, aimed at the simplification and consequent cheapening of production, no labor or expense have been spared to add them to the equipment of a plant, which is thrown open to the reader as among the completest in the world, in any department of Industry.

It is with the cordial wish that the reader may participate, in some degree, in the pleasure experienced by the publishers in the issuance of this volume, that we solicit for the following pages his friendly perusal.

WILLIAM MANN COMPANY.



WHEN the historian begins to construct a story out of the fragments of the Past,—a story which must be coherent and truthful—two rules must govern his procedure: he must both regard the persons whose actions form the materials for his history, and the results which those actions superinduced. No matter what the sphere of life he chronicles—political, religious or industrial—neither of these elements can be safely disregarded. The manner of man one is will determine the nature of the acts one does. Conversely, the character of one's acts is a pretty safe criterion for judging the native tendencies of the man. The true secret of the causes ending in success or failure need not be traced much farther back than the individual.

The events of an epoch will always be found to revolve around one or more prominent personages, from whom go forth the influences that mould and shape the spirit of the times into an image of their own idea. In analogous manner, in the business world, the beginning of institutions lies with the man or men whose thought, energy and will gave them birth; so, also, is it with the influences which foster the growth of such institutions, carry them upwards to success, and ensure their perpetuity. Within the seed lie all the processes which culminate in the monarch of the forest; within the idea lie concealed all the subsequent possibilities. The seed may come to naught because of poor conditions; so may the

idea fail of expression because of poor soil. But when the thought of a great business starts, only the beginning is aimed at. Rarely is the magnitude of the end foreseen. Others generally carry towards perfection what is thus conceived: origin, development and consummation continue as long as a business continues. Hence, the plan of this historical and descriptive sketch is at once before us, having to do with the founder first, then with his successors, and finally with the present facts of the business. Accordingly, justifying the introduction of the personal element, I will ask the reader to attend with me to facts in the career of William Mann.

William Mann, founder of the business now bearing his name, was born in Philadelphia, June 14th, 1814, and spent such early years as were proper to an apprenticeship upon a farm near Haddonfield, N. J. Wearied with agriculture, which could never have contained the dominating energy of his character or have given the latter its legitimate expansion, he abandoned that pursuit to learn the trade of a house carpenter. This he acquired at Haddonfield, when eighteen years old. Several years were spent in the avocation, during which he married. Subsequently, he went to Washington, D. C., and entered some of the Departments of the United States Government, in one of which, notably the Auditor's Office, he assisted to compute the Census then under process of formulation. Work upon the Census was followed by a return to his prior trade of house builder, in which he engaged until the Fall of 1848. In the interim, however, a natural inventiveness began to exhibit itself, the first results of which was the useful appliance known as "Mann's Patent Movable Binders" for filing letters. A confidence in the efficiency of the idea, which was both simple and ingenious, induced Mr. Mann to come to Philadelphia at this time for the purpose of introducing the specialty. His two oldest sons accompanied him. The primitive business methods of those times have not yet passed beyond the recollection of a good many people, who cannot but dwell pleasantly upon the earnest simplicity of Commerce, so strongly contrasting with latter-day

competition. Those were days of sturdy effort. Mr. Mann participated in their spirit, canvassing from door to door with his Binder. Six months had not passed before sufficient headway had been made to rent a small wareroom at No. 74 (old number) North Fourth Street, a portion of which was occupied as a dwelling and the remaining apartments for manufacturing purposes. Out of this beginning, modest and unpretentious as it was, the present business has developed. Eventually, a small stationery store was established in the location thus selected, and through a vigorous personal canvass, constantly maintained throughout the business and residence sections of the city, a good trade in binders and kindred articles was developed.

A few years at the Fourth Street wareroom exhausted the resources of the building, which did not admit of facilities in accord with the expanding volume of trade steadily flowing in. Mr. Mann then removed to the second floor of No. 25 South Sixth Street, having in the meantime increased his canvassing facilities by the addition of a horse and wagon. In Sixth Street he invented what is known the world over as "Mann's Parchment Copying Paper," a product possessed of certain properties obtained in mixing the stock and in treating it, which lend themselves to letter-copying where permanency and legibility are specially required. The reproduction of an old advertisement—a circular issued about this time by Mr. Mann, and which is in the possession of the William Mann Company,—will illustrate the nature of the specialties then handled, as well as the encouragement extended to Mr. Mann by the consumers. It is an interesting glance backwards to a time when copying books with numbered pages were first introduced, and the copying press began to make inroads upon the old methods of preserving a duplicate of records.

The Sixth Street establishment becoming in its turn restricted, a removal to more commodious quarters on the Northeast corner of Third and Chestnut Streets was made, only to be followed a little time after by the rental of Drexel's old Banking building, at No.

MANN'S
ESTABLISHMENT,

25 South Sixth Street, above Chestnut,

PHILADELPHIA.

In November, 1849, the undersigned opened an Establishment for the sale of the Best and Cheapest Presses and Appurtenances used in COPYING LETTERS—where have been sold over 1,000 Presses, 20,000 Copying-Books, 3,000 Dampeners, and 15,000 Letter-Binders.

Our efforts have been appreciated, and the encouragement received has led to the selection of a more central location, where Merchants and others are invited to call and examine—where may be had our

PATENT DOUBLE-LEVER

LETTER COPYING PRESS.

Some of its peculiarities are, that it does not require fastening down; pressure obtained with more ease and much quicker than by other methods; not so liable to get out of order or break.

PATENT METALLIC DAMPENER,

Superseding the use of the brush, wet cloth, and blotting-paper. With it a perfect copy may always be secured. *Can be used with any Press.*

Parchment Paper, (Patent applied for.)

Letter Copying Books, with Pages Printed,

Bound with Leather backs, Cloth sides, and sewed on Parchment.

BEST QUALITY COPYING INK ALWAYS ON HAND.

PATENT MOVABLE BINDER,

A most valuable invention (and one that should be found in every counting-room), for keeping in a book-like form, letters, original invoices, music, newspapers, or any papers where easy and ready reference is desirable.

WM. MANN,

25 South Sixth Street, above Chestnut, Philadelphia.

FAC-SIMILE OF AN OLD ADVERTISEMENT.

48 South Third Street, and the installation of the plant therein. A completely stocked Stationery and Blank-Book establishment was here begun, trade still farther expanding to enforce another removal to No. 43 South Fourth Street, where the business continued for several years — up until 1873. During this year Mr. Mann purchased the large five-story building, No. 529 Market Street, which is now occupied by the Executive and Retail Departments of the William Mann Company.

The career of William Mann, up to the time designated, had been an exemplification of incessant enterprise. He had been the first to make a copying paper in this country, and thus to lay the foundations of a trade in this article which transcended his greatest expectations. He had participated in the invention of several special articles of usefulness in the Stationery field, which added to the fruits of his labors, and had upreared his business on lines reflecting his own integrity of purpose and unswerving determination to succeed. It must not be supposed that the business life of William Mann was devoid of financial struggle. While at No. 529 Market Street there were vicissitudes of no inferior magnitude; the panic caused by the failure of Jay Cook involving Mr. Mann's business with that of many others in the upheaval. The new building had been purchased; it had been refitted and equipped with machinery of improved pattern, and heavy running expenses augmented the difficult task of financing the establishment in times when all were retrenching their funds in circulation. Nevertheless, rejecting a suggestion then made that he assign and pay fifty cents on the dollar, he fought through the uncertainty and came out with a clean balance sheet.

In September, 1881, William Mann died, aged 67 years. It was a request embodied in his Will that his sons, properly the ones to carry on the business, should unite and form a Company, which was done in April, 1888—the name of the corporation being the William Mann Company.

In his business life, William Mann was a persistent, resolute

and energetic worker, possessing strong executive powers, keeping his hand steadily upon the helm of his business, and strictly conscientious in his dealings with debtor and creditor alike. Keenly alive to the possibilities of every new avenue opened in the natural ramifications of Trade, he passed over the pitfalls into which unrestricted progressiveness is so frequently led and was enabled to focus his energies in directions where fruition was certain. If a pen picture could accurately delineate his business characteristics, such might be given in these words: A progressive spirit, ruled by more than ordinary intelligence and good judgment; a deep earnestness impelled and fostered by indomitable perseverance; a native justice expressing itself in correct principle and practice.

Personally, William Mann was characterized by strong religious convictions and moral courage. With but little opportunities for liberal culture, he attained an insight and familiarity with the world of literature and thought possessed by few not given by profession to scholastic pursuits. He was broad in his sympathies, liberal in his charities, a loving husband and a tender father. Such, in brief, are the impressions made by his life upon the hearts of those who knew him well.

The demise of William Mann, followed by the formation of the Company which he advised, did not, as is so frequently the case, retard the development of the business which he had inaugurated and fostered so successfully. On the contrary, his successors had been long familiar with the methods to be pursued in accomplishing the unfoldment of its possibilities. The volume of trade kept on swelling until the channels through which it flowed necessitated still farther enlargement. In the Fall of 1893 contracts were issued for the erection of a large manufacturing building at the corner of Fifth and Commerce Streets, Philadelphia, wherein all departments of production, in the specialties conserved, might be centralized. The planning of the structure, which contains eight stories and a basement, was entrusted to Mr. Thos. P. Lonsdale, a well-known architect, with instructions to build a thoroughly

up-to-date factory, having perfect facilities for the comfort and convenience of those employed, as well as abundant floor space for the equipment demanded by the varieties of work to be done. The edifice was finished and occupied during the Fall of 1894, and numerous exterior and interior views are elsewhere presented to afford a more comprehensive conception of existing manufacturing facilities than could be given by mere description. Here are carried on all classes of blank-book making; the manipulation of various special grades of copying paper into books of all sizes, for the use of firms, railroads, etc.; printing, both as to composition and presswork; lithographing and embossing.

William Mann was the inventor of a process of making copying paper, having characteristics which brought it into immediate prominence. This latter has been augmented by the growing reputation of the makers and by their introduction of all grades demanded in the uses of commerce. Around the original brand of "Parchment Copying Paper," have grown other styles of copying paper, known as "Mann's White Linen," "American Glazed," "Mercantile," "Manilla," and "American Railroad," the last of which is used by all the principal railroad companies of the country.

In 1882, the year following the death of William Mann, it became necessary to start a paper mill for the manufacture of copying papers. A property at Lambertville, used for other mill purposes, was purchased and the building enlarged and equipped for the specific manufactures contemplated.

It will thus be seen that the facilities offered by a consecutive chain of processes, carried on from beginning to end of productions specialized by the William Mann Company, readily lend themselves to the highest excellence, the utmost economy and the most certain uniformity. It is modestly believed that such will be better apparent from an illustration of the methods, and with a few words this section can be brought to a close.

The commercial institution, known as the William Mann Company, was germinant with the honorable man whose name it

bears. The manner of man he was is shown in the magnitude of the present enterprise, while the conduct of the latter, as to policy and methods, reflect his motives. Those who have assumed the reins of control have sought to interpret and adapt what they believe to be the soundest and truest business principles to the constant and rapid progression which is necessitated by the upward march of Industry, in lines of experiment, discovery and invention. The influences of the epoch are incessantly inventive and improving. Production is correspondingly simplified and facilitated. Primarily in the interests of the consumer, the results are equally essential to the producer, and an intelligent and iconoclastic administration is daily being more demanded. It was to his anticipation of this truth that the rapid development of William Mann's business must be ascribed,—a truth which constitutes the aims and practice of those who now comprise the William Mann Company.

A CHAPTER ABOUT THE EXECUTIVE DEPARTMENT

ONE of the essentials to proper administration in any enterprise, the extent of which precludes the individual supervision of details, is a system by which each function and process is separated and yet unified. A business organism is analogous to a human body, each organ of which performs its own work independent of, yet controlled by, the vital processes. As it is with the human body so it is with the body corporate. It is in the perfect regularity and co-ordination of the functions that the health and harmony of the results are to be sought.

The entire business of the William Mann Company is administered from its main offices in the five-story building, No. 529 Market Street, Philadelphia, where are located the various departments connected with the directorate. The executive heads of the firm, who assume a complete general management, are Joseph H. Mann, president, and Charles H. Mann, vice-president. The details of the business are systematized in departmental form, each department having certain specific duties to perform, under the supervision of one or more employes rendered expert by experience and capacity.

Mails are received from the Post-Office twice daily, and the letters comprising them are opened and distributed to the respective departments by the secretary of the company, William A.

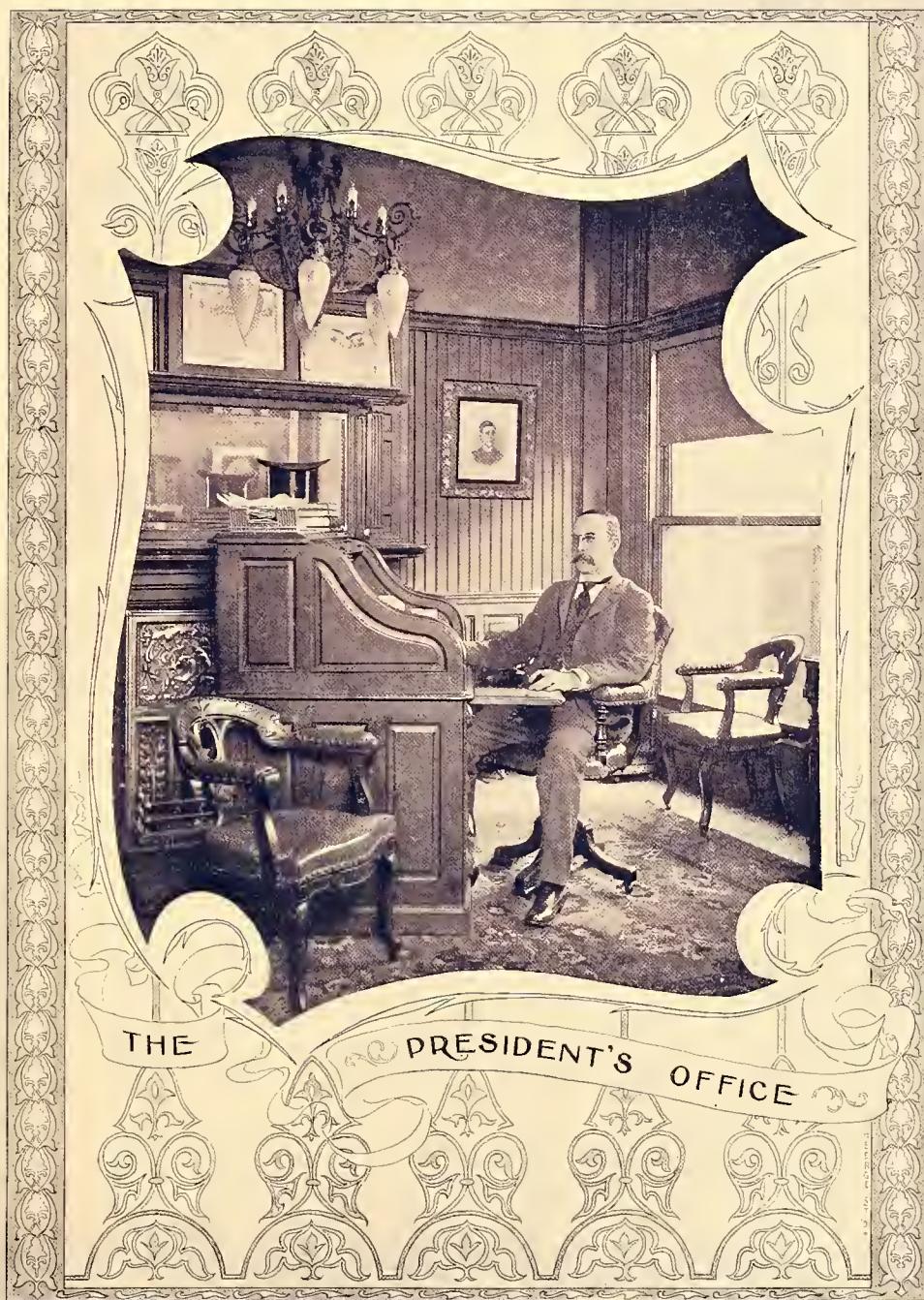
Stewart, whose association with the firm dates from his boyhood, or since 1863. It is a rule of the company's, based upon the governing principle of its founder, William Mann, that every letter or inquiry received shall be answered, if possible, before the close of the same day. "Promptness and One Price" was a business precept closely followed by William Mann, and constitutes the dominating principle of the present management.

The Accounting Department, a view of which is given as a text-illustration, is supervised by John B. Buzby, treasurer of the company. This department, standing in a measure by itself in every business, includes the control of collections and the liquidation of

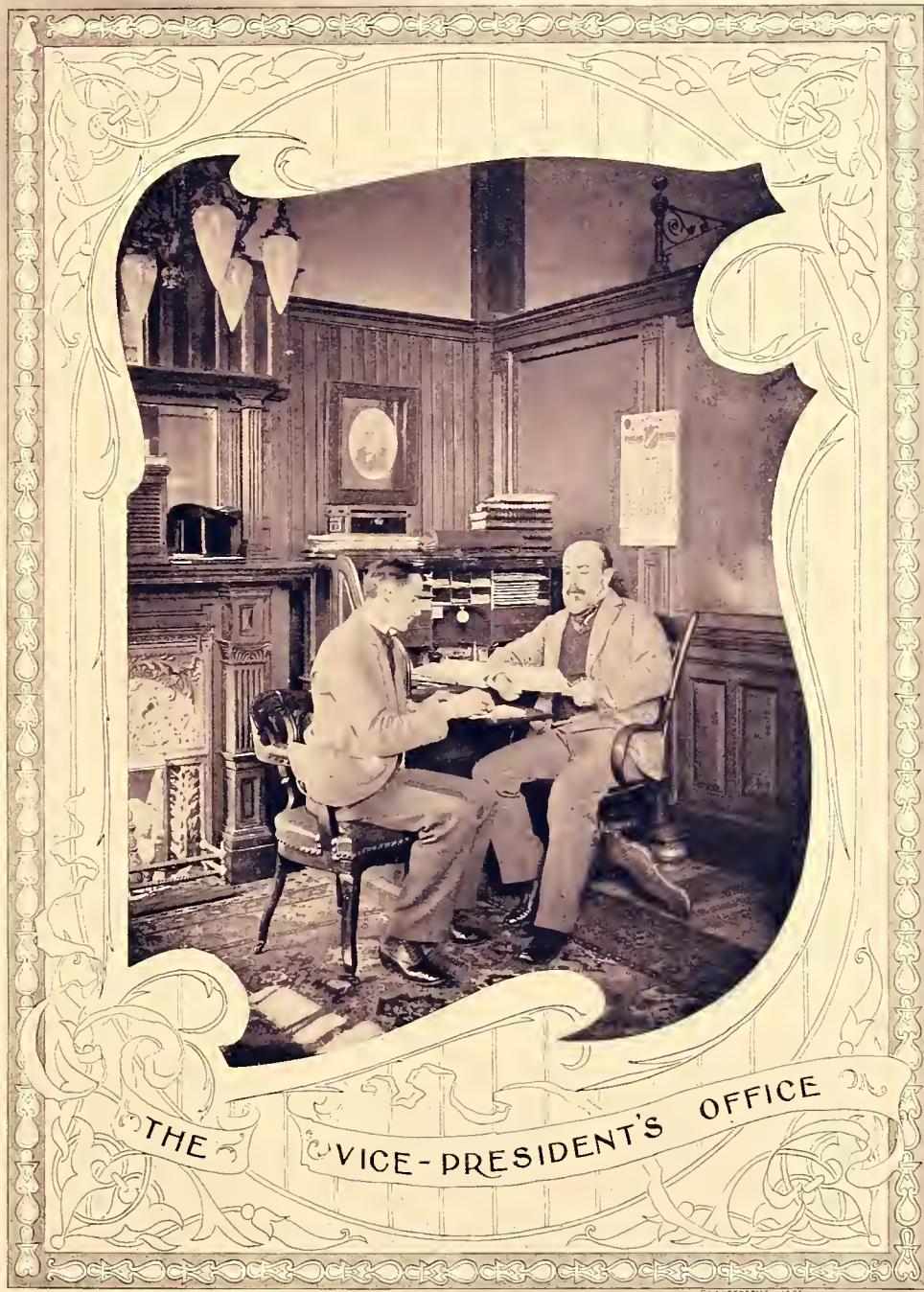
accounts, in itself an arduous and voluminous function. The ramifications of the business, extending far beyond the boundaries of the United States and Canada into foreign countries,—with which a growing trade is maintained,—render the number of accounts very large.

The influx of business naturally divides into groups or classes, each requiring different treatment, particularly where manufacturing as well as retailing are involved. All orders received by the William Mann Company relating to goods to be manufactured expressly for the customer are referred to the Order Department, where they are entered, with full description of details, each order being designated by a number throughout the entire process of production. It thus becomes easy to ascertain the precise stage of completion which may have been attained by the order, and to trace to its proper source any deviation from original instructions given at the time of its filing. Two advantages are hence obtained:





THE
PRESIDENT'S OFFICE



C.W. HEGGERTY 1898

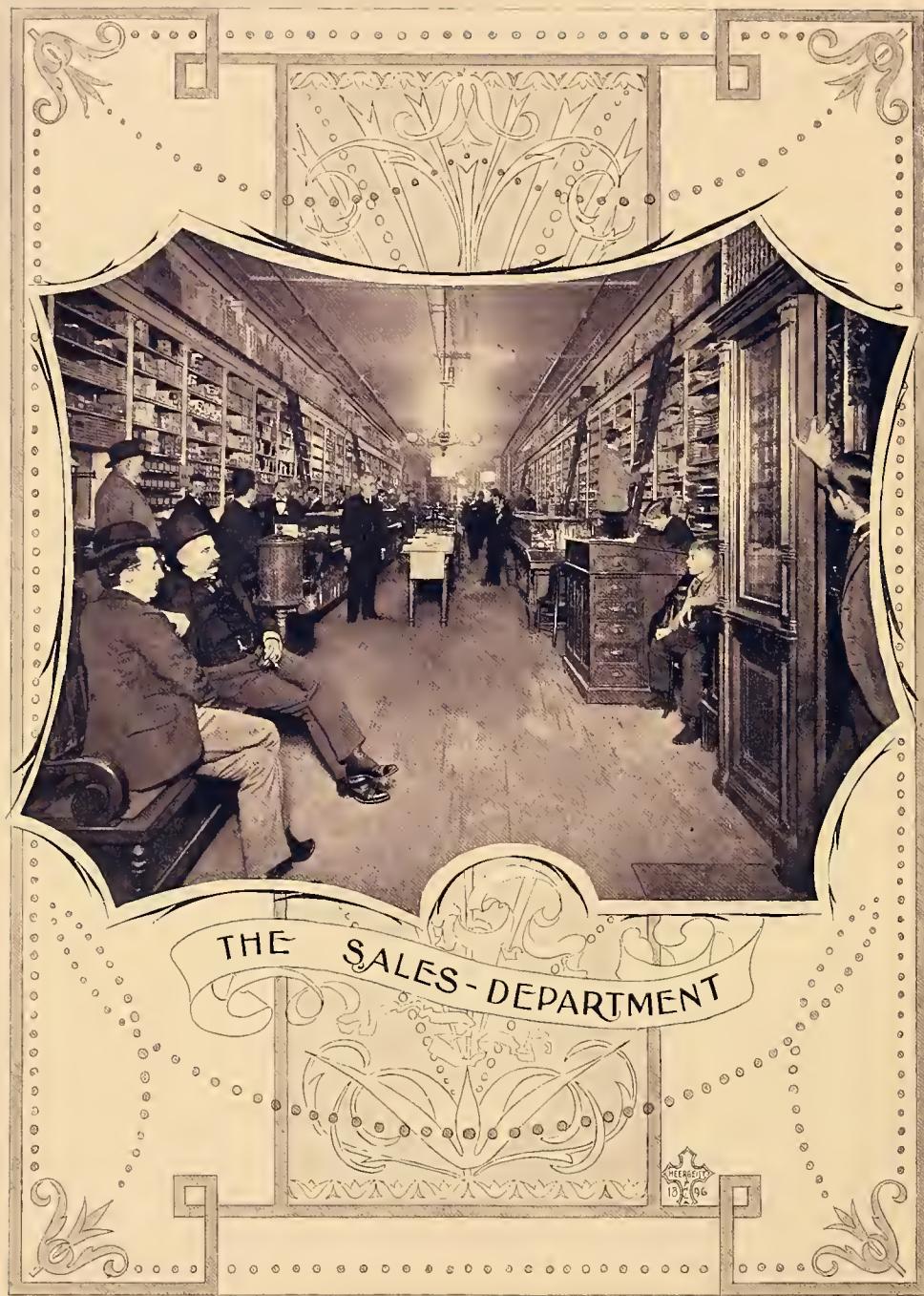
the accurate filling of orders as they are given out, and the ready repetition of an order if it may subsequently require duplication. A partial view of this department accompanies the text.

Another group of letters, outside of orders, relates to inquiries as to cost of goods, specially made up, etc., and these receive attention by the Estimating Department. Cost of production is the most important element in successful manufacturing, and has been said to underlie the entire field of industrial activity. It is a fore-knowledge of what may arise in producing goods before they enter upon the actual processes involved. By its intelligent application, within a certain margin allowed for contingencies, the empirical is superseded by the exact knowledge, and a definite standard of excellence in materials is possible, which would be otherwise threatened if at some late stage of the operation it was discovered that the sum charged was inadequate to the cost of manufacture. In conformity with this arbitrary law, a department becomes necessary wherein practically informed men shall compute, from fixed quantities, the permissible price at which an order can be filled. In the department indicated no guess-work is allowed; there must be an accurate knowledge of what every stage in manufacture will cost within narrow margins of time and materials.

Orders for goods from stock are referred to the Sales Department, in which an efficient corps of salesmen are invested with

the requisite authority. Completeness and quantity of stock being imperative where so much of a business is done in manufacturing to order, this department is maintained upon a scale the largest and most extensive. It is probable that the largest and most complete stock of blank-books and sta-

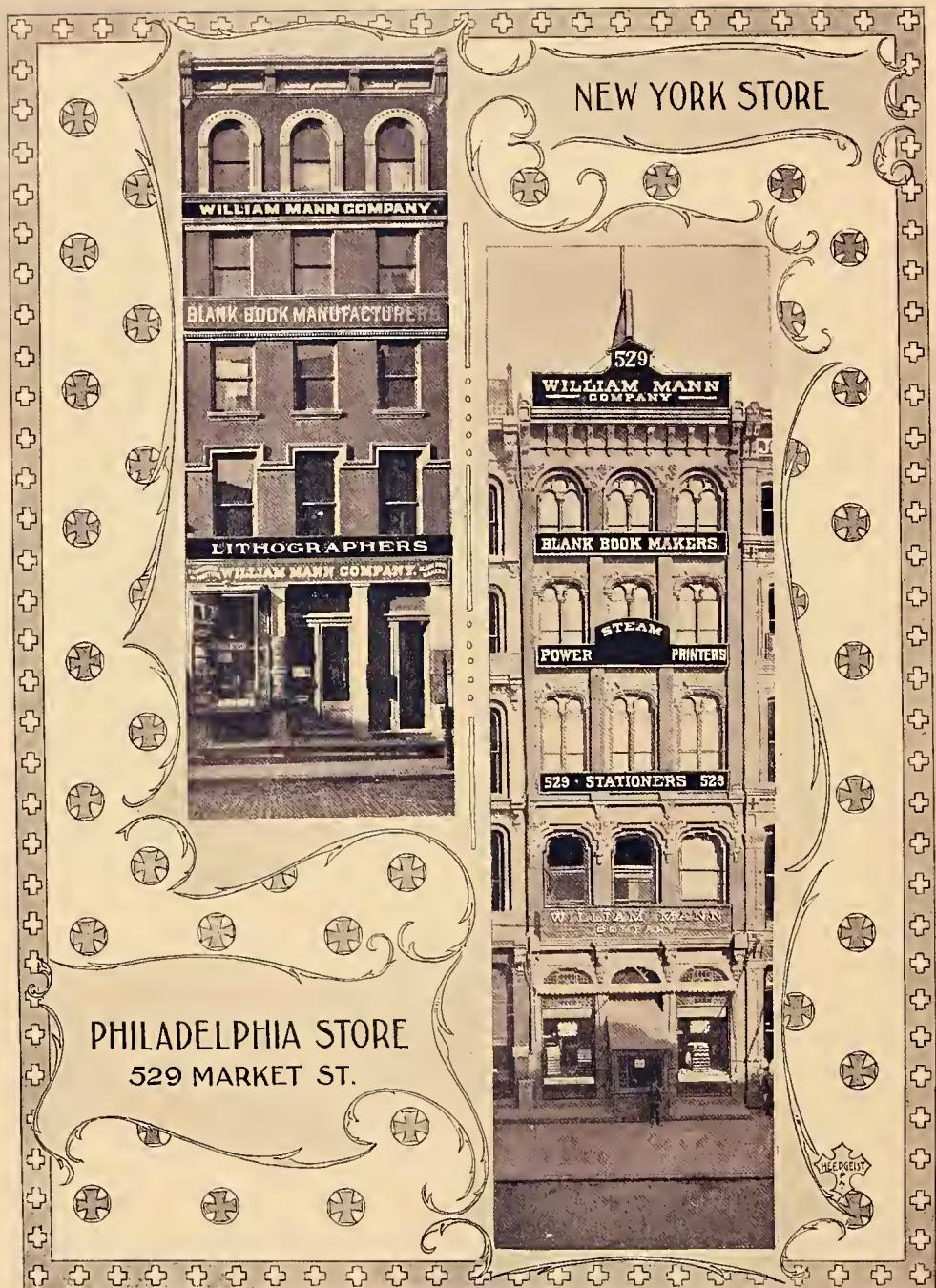




tionery for commercial purposes in the United States is kept here. The extent of the department can be approximated mentally, from the view taken at the front of the building, just inside the doors opening upon Market Street. It occupies the entire ground floor, part of the basement and a section of the second floor in the building at No. 529 Market Street, a view of which is shown in connection with the New York store of the company.

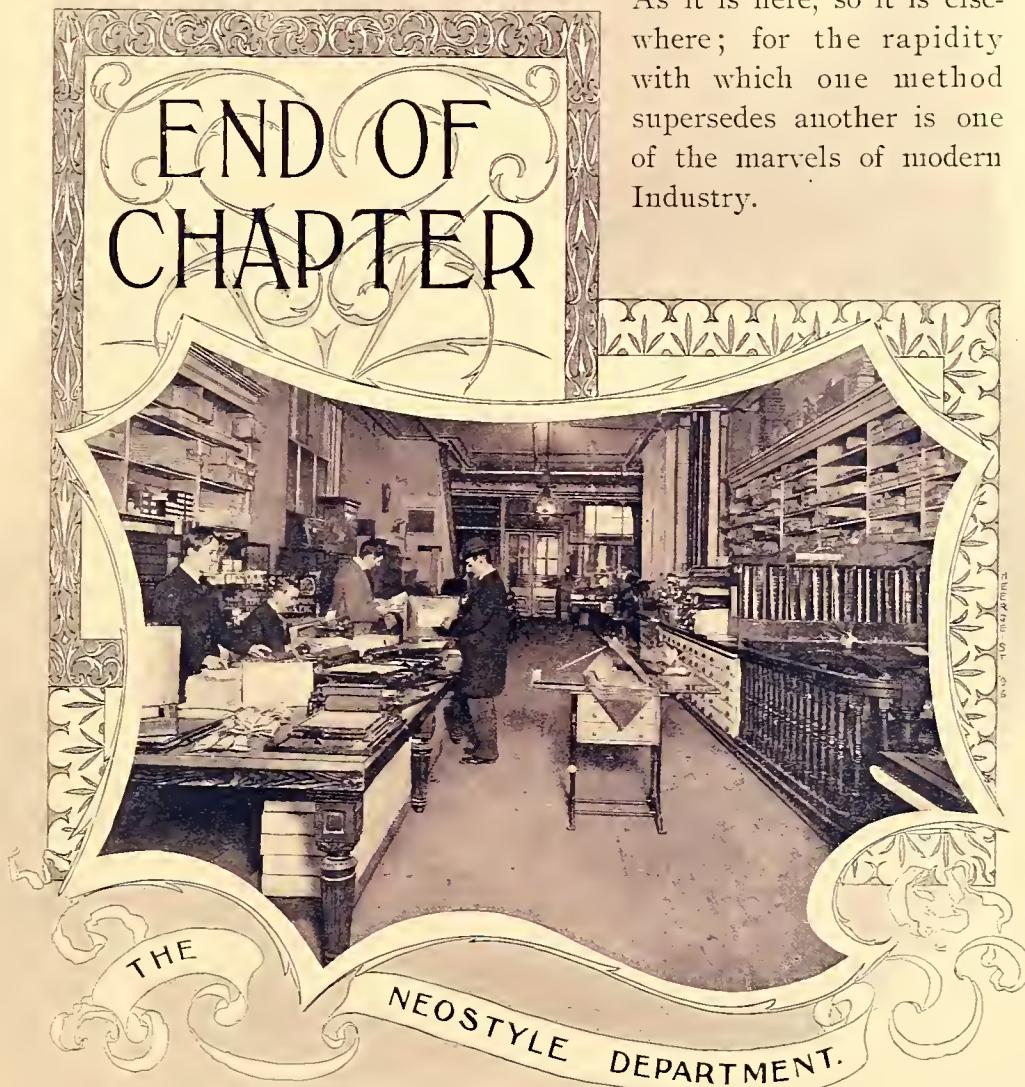
The remaining part of the basement in the Philadelphia building, which has a frontage of 24 feet and a depth of 200 feet, contains a modern steam plant, for heating purposes, and an electrical plant for lighting the building. An ascent to the second floor reaches the executive offices of the company, in the front being the offices of the president and vice-president, as illustrated, opening into a reception apartment, back of which, at one side, is the Order Department, and, at the other side, is the Accounting Department. Still further back is the continuation of the Sales Department. The three remaining floors of the building are utilized for the storage of goods.

Descending to the Sales Department, to its rear, is an important branch of the business. It is portrayed in the chapter-ending as the Neostyle Department, where are kept a stock of Duplicating Machines, upon which the company owns a number of patents. The usefulness of mechanical appliances for duplicating manuscript and for taking copies of an original writing is daily receiving greater recognition. The well-equipped business office employs one or more of the various devices in this field, whether "Neostyle," "Mimeograph," "Cyclostyle," "Diagraph" or others, not alone for convenience but for advertising purposes. The advantages of a personal appeal accompany a circular-letter thus printed, ensuring perusal, whereas printed matter is hurriedly glanced over or carelessly tossed by. There is no province of commercial activity, professional work or literary effort—where duplicates are needed—into which some one or another of these appliances have not found their way. With the machines have come supplies adapted to



ensure the best results. All such are kept here, the aim being to add every specialty which will aid the operative in getting out the greatest amount of work in the shortest time and at the lowest cost. With the introduction of the type-writer has arisen a whole legion of ingenious auxiliaries for making copies, either carbon or letter-press, and it is now possible to produce forty copies of the original writing, without further labor than the one key-board operation.

As it is here, so it is elsewhere; for the rapidity with which one method supersedes another is one of the marvels of modern Industry.



THE MAKING OF COPYING PAPERS

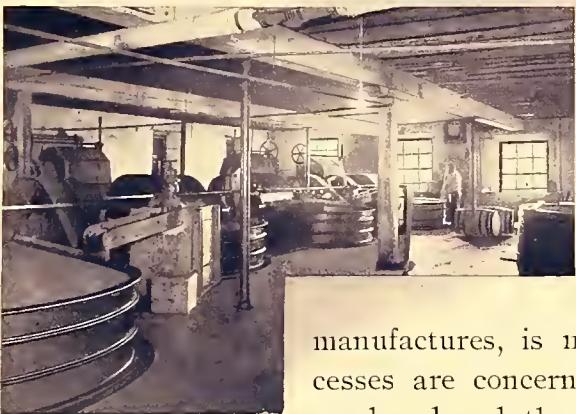


DURING fifty years of uninterrupted activity in manufacturing and selling different specialties, the business operated by the William Mann Company has especially expanded in two directions—one of which is the making of blank-books, the other the production of copying papers, to be subsequently manipulated and converted in its factory into copying books for every conceivable purpose. In the blank-book line, all processes but one—that of making the paper used in the books—are carried on, and in one establishment, under one superintendence. In the manufacture of copying books, in

which the paper itself must have certain specific properties, the impartation of which is a matter of knowledge confined to the establishment where it is made, it becomes necessary both to bind the books and make the paper, as well. Accordingly, the William Mann Company operates its own mills, which have already been mentioned as located at Lambertville, N. J. Desiring to begin at the first process, prior to carrying the reader through the living chain of processes embodied in the leading specialties of this firm,



the writer requests attention to what is one of the most interesting stages in the evolution of a copying book. Paper-making is to-day becoming more and more precise, and a knowledge of materials and the requisite combination of stock to effect the given results has placed it within the power of the scientific paper-maker to bring forth pretty much everything that is desired. There are still some secrets, however, which are retained as the private property of persons or firms, and these constitute the specialties



which generally win a rich harvest for their possessors as the legitimate fruitage of their experiment and enterprise. The making of copying papers, like that of other grades of paper

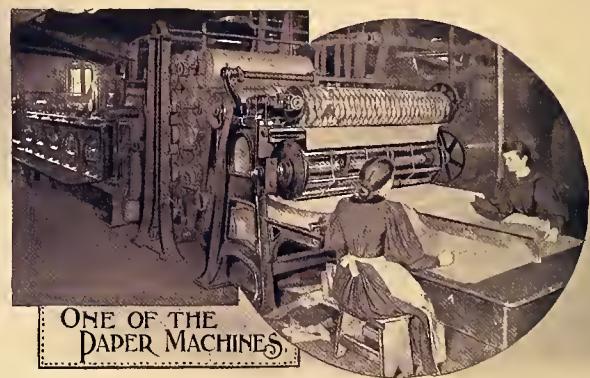
manufactures, is not a secret, so far as processes are concerned; it is in the materials employed and the mixture of the stock that

the success or failure of the results are founded. Up to a certain point, paper-making is all alike, however diverse may be the treatments; beyond that point the skill and experience of the workmen are the factors which ensure desired ends.

The raw material is brought to the mill and elevated to storage lofts, in which it is contained. The chapter-heading illustrates stock being fed into a cutting machine, which converts it with astonishing rapidity into a mass of finely comminuted hemp, etc. This process is executed on the third floor. The machine is driven by power, and the speed of conversion is only limited by the quantity that can be fed by the operative into the capacious maw of the iron monster. Being cut, the material is ready for its second process, which is that of dusting. Accordingly, the mass of cut stock is first passed through a machine known as a "duster," which, by means of a current of air, blows away the looser particles of dust; it is then sent through by a chute to the rotary boilers, on the floor below, partly seen in the illustration. Here, by using chemicals, the stock is boiled for a number of hours until the fibres have been brought to a proper condition. The liquor is run off and the stuff taken away to other machines, called "washers," where it is treated in pure water to remove the chemicals, which would injure the fibres if allowed to remain, and to still further purify the mass while pulping it. These machines

are nothing but large vats, in which, by means of revolving rolls, etc., the "stuff" is caused to effect a continuous circulation in the receptacle, so as to present every part of the material to the cleansing action of the water which has been introduced. When the final washing has been completed the pulp is ready for bleaching, after which a large stock pump carries it to the drainers, where for several days a further process of bleaching is continued. Experience and great care is required in reducing stock to half-stuff. Next we introduce the pulp into the beating engines. The man in charge of this department understands that the quality of the paper depends greatly upon his knowledge of his business and the cleanliness of his surroundings. After a careful preparation of the stuff in the beating engines it goes to the stuff chests, from whence it is taken to one of the paper machines. This complicated and wonderful piece of machinery receives the pulp in a diluted state, and with surprising skill and quickness is arranged a uniform silken web, thus gradually solidified, passing endlessly over rolls which compress the fibres and practically amalgamate the pulp; the web is then fed through rolls which are heated from the inside by steam, and these "dryers" accomplish the balance of the process. The web passes on beneath a rotary cutter attachment, set to take off even intervals of the web according to the speed of its travel, and girls receive the sheets and complete the operation.

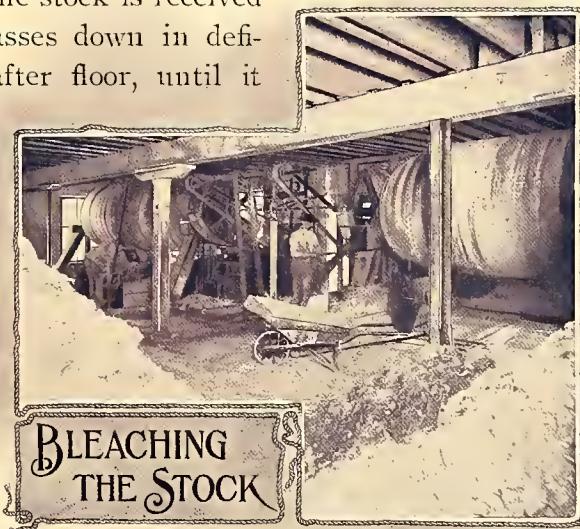
The process is not complete with the functions thus described, however; there are later and very important elements to be still observed. No care can absolutely obviate the chance presence of imperfect sheets, or those in which irregularities prevent their utilization. The utmost care is employed in the "Old Reliable"



ONE OF THE
PAPER MACHINES

mill to secure uniformity and unvarying excellence of output. In the remaining department of the mill, shown in the terminal view, a goodly force is kept constantly employed in sorting, counting and assembling the finished papers. The rapidity with which one of these operators can run, with fingers as nimble as their eyes are keen, through a pile of papers from the machine, thus verifying the product as it comes from the girls sitting at the delivery end thereof, is very astonishing to one unused to such dexterity. The care that is exercised to prevent any imperfect sheets from being packed is the most conspicuous feature of the management, and the system adopted has proved efficient in every possible way. When counted, assorted and packed, shipment is made, thus completing the operation.

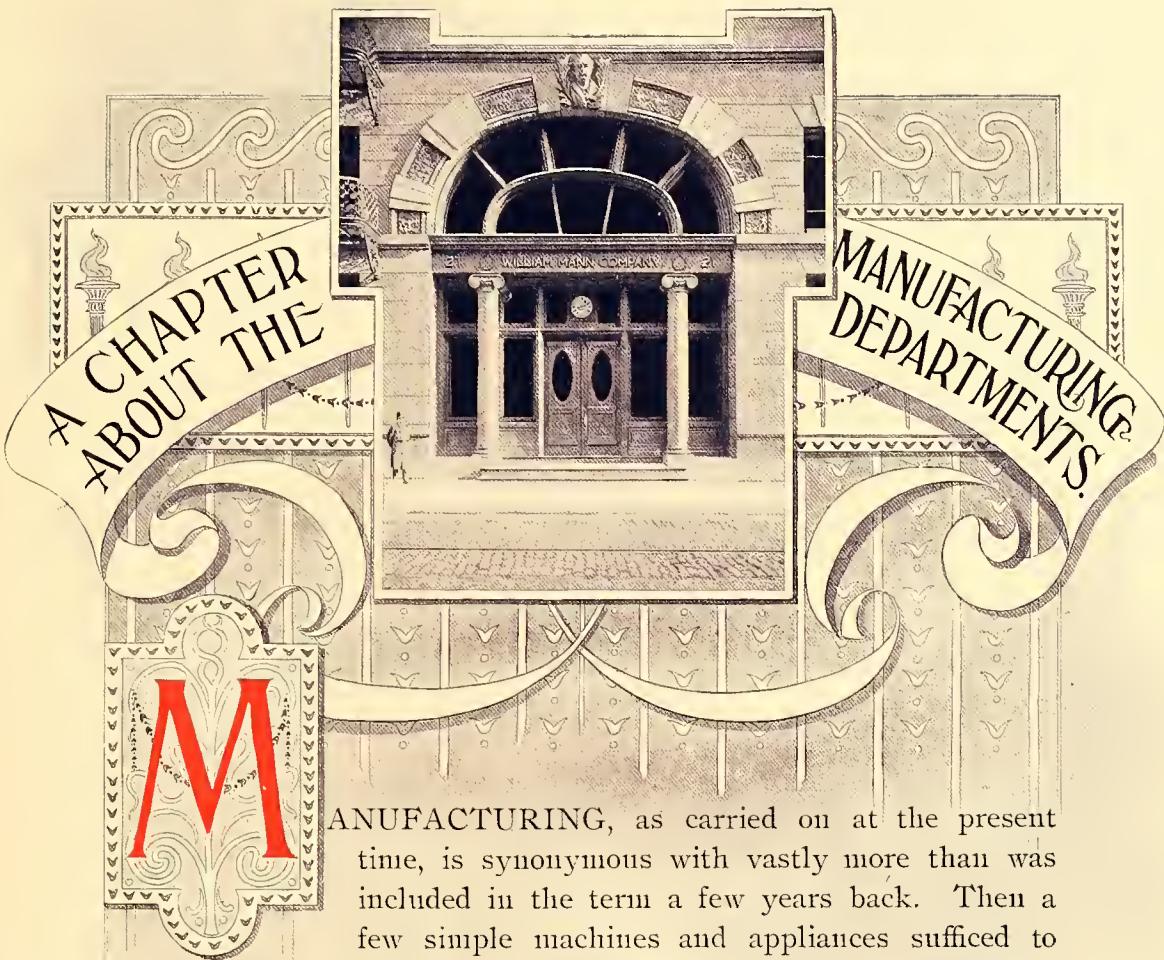
Every grade of copying paper, of which the William Mann Company makes a specialty, is produced at this mill, the equipment of which, both as to machinery and facilities, has been carefully adapted to the character of the work to be performed. The system observed in the manufacture is identical with that observed in the manufacturing departments of the Philadelphia establishment; a regular and progressive direction is given each order all the way through the operations. The stock is received into the top floors, and passes down in definite consecution to floor after floor, until it emanates a completed product from the shipping department on the ground floor. The handling is thus minimized, economy is conserved, and expedition greatly augmented. The facilities of the machines employed in this mill is about 1,000,000 pounds



of paper yearly. This flows out in the various channels of trade to home and foreign consumption, affording us a partial idea of one branch of the business. The methods of subsequent manipulation will greet us in the Manufacturing Departments, with which we shall next concern ourselves.



END OF CHAPTER



MANUFACTURING, as carried on at the present time, is synonymous with vastly more than was included in the term a few years back. Then a few simple machines and appliances sufficed to perform what the handcraftsman felt lay outside his immediate province of work. Such is no longer the situation. There has been a mighty influx of new ideas, in the way of machinery, devices and processes of production,—all tending in the direction of high-grade, automatic operation,—which has been slowly but surely effecting a change in methods as well as means. The latter, however, have been the first to feel the revolution and to respond to the influences. Machinery now aims at performing as much of the entire task as was formerly accomplished by several men, and the greater the number of functions embodied in the machine the more complete is it considered. In some of these products of inventive genius, the end is worked towards with an

intelligence that is almost beyond the human, both simple and complex operations being carried out with equal excellence to handiwork, and with far greater regularity, dispatch and economy.

The influences generated by approved appliances is nowhere more palpably manifest than in the making of blank-books and in the kindred departments incorporated in the manufactures of the William Mann Company. In the new factory building, where have recently been installed the producing departments of the business, every result of human ingenuity, whether in the way of machinery or processes, is present. The very latest devices are looked for by the experienced superintendent, Robert G. Lucas, who has but to make plain their utility and desirability in order to obtain them. Whatever will facilitate output, or will elevate the standards of production, is added to the plant, which embodies a completeness and modernity wherein the officers of the company take a just pride.

The factory building is situated on the Northeast corner of Fifth and Commerce Streets, and is a large eight-story and basement structure, built of brick, with rich terra-cotta trimmings, ornately designed and tastefully applied. Each floor comprises 6000 square feet of space, thus affording, in the entire building, an area of 54,000 square feet which is all occupied with the processes of manufacturing, the storage and shipments of raw material and made-up goods, and the complete power and electric lighting plant with which the establishment is equipped. The style of the building is the Spanish renaissance, that odd but pleasing and substantial revival of architectural art,



GENERAL SUPERINTENDENT'S OFFICE.



which characterized a nation of mariners. In consequence, the decorative motifs of the building, shown in its details and trimmings, comprise the mermaids, sea-weed and shell details, which are wrought into schemes of ornamentation that are both graceful and appropriate to the commercial uses of the structure.

The building has three of its sides open, and through a number of expansive windows generous quantities of light and air are admitted to the workrooms. In every instance the safety and comfort of employes have been matters for careful consideration. Escape in event of fire has been absolutely ensured. Inside the building is a staircase for the workmen, having iron walls, slate floors, and shut off from the rooms by tin-covered doors, always closed. The structure is what is known as a slow-burning edifice, and as near fire-proof as practicable. In addition to such inherent safeguards, however, a completely enclosed and independent fire-proof stairway is provided (seen in the view of the building to the left). This escape can only be entered from the outside of each floor, through a door opening onto an ornate iron balcony, which extends across and in front of a window, permitting easy egress from the workrooms. An automatic sprinkler service is also provided, effecting pneumatic connection by flow of the water with the Philadelphia Fire Department and Insurance Patrol. Such precautions as a hose of large diameter and fire buckets are located on each floor.

For a proper supply of water to the sprinkler system and fire hose two large tanks are provided at an elevation above the roof, which contain ten thousand gallons each,—quite a sufficient amount of water to extinguish any ordinary fire—and should fire occur during working hours the supply of water can be fully kept up by the two large steam pumps in basement, which are connected directly with the tanks. A large tank is also located on the roof for supplying the building with water for ordinary purposes.

* * * * *

The order, coming as we have previously seen, from the Order Department in the Executive Offices, enter the factory office, and are individually recorded by their respective numbers. This record is progressively associated with each other all the way through its course of manufacture, the data connected with each stage being attached to it. If inquiry is made before its completion, the job can be immediately located, the superintendent communicated with by a private telephone service, and the condition of the work ascertained without delay. Between the main offices, at 529 Market Street, and each manufacturing department is a very complete system of telephones. The orders having entered the factory, the reader is invited to accompany us in a general visit to the respective departments wherein they are executed.

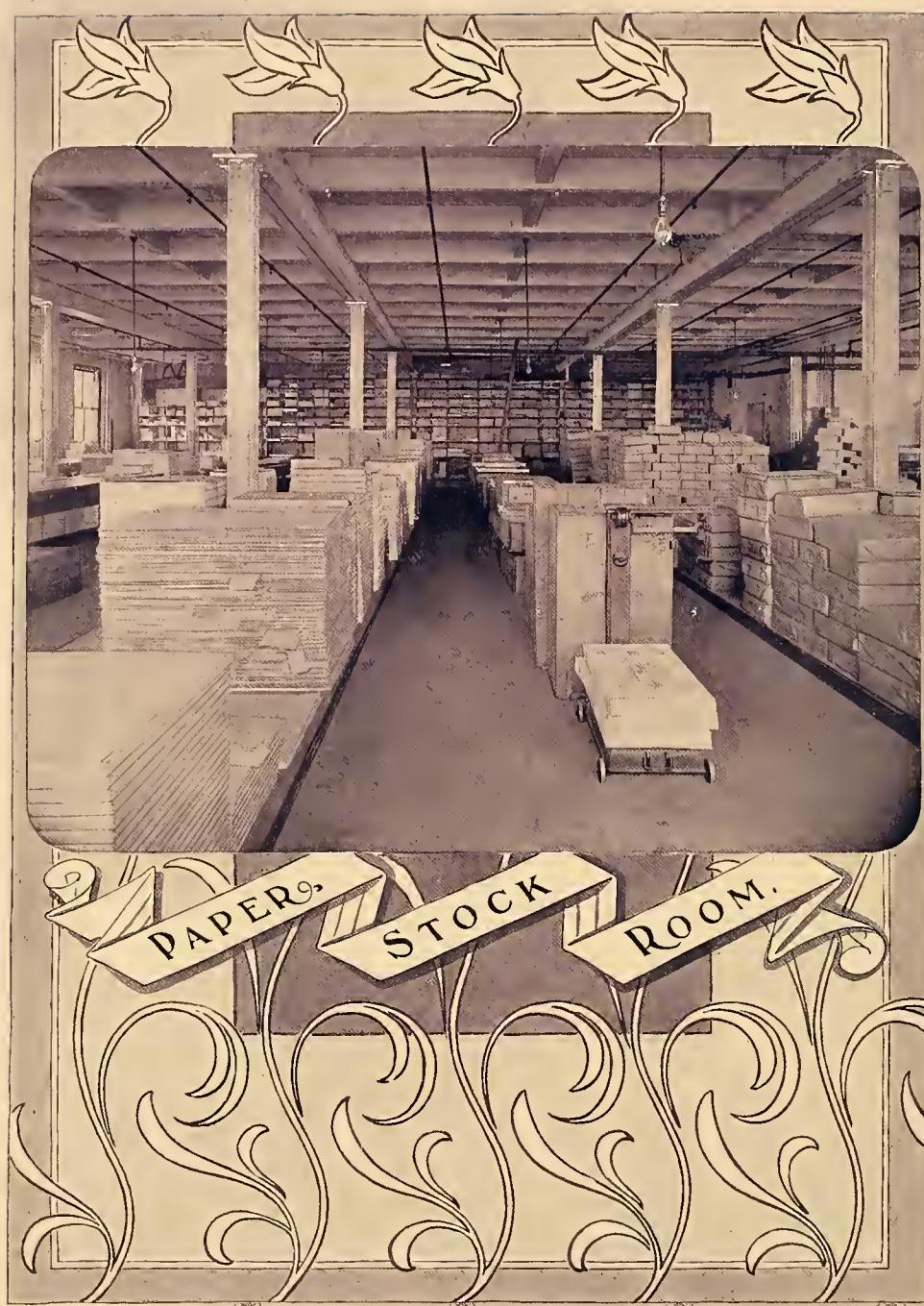
END OF CHAPTER



A CHAPTER ABOUT THE STOCK ROOM.

S

UCCESSFUL competition in this progressive age demands not only that facilities shall be of the latest and the best, but that every outlay for materials or supplies be made at first hands. The more complex the channels of trade through which raw material has to pass ere it reaches the manufacturer the higher will be its cost. In recognition of this business truism, the William Mann Company draws upon the producer of its raw materials direct, purchasing in large quantities and carrying heavy and full lines of papers, etc., all procured from the mills. Ascending to the eighth floor, where the Paper Stock Room is situated, occupying the entire area of 6000 square feet, the visitor finds himself surrounded with an extensive assortment of flat papers, employed in the various branches of the company's products. Very little, if any, of this has been purchased through commission houses or dealers, the rule being to buy at first hands and at spot cash prices. The highest grades are thus obtained at the lowest market prices, with all discounts eliminated, and not only is successful competition ensured so far as other manufacturers are concerned, but customers are retained by receiving the benefit of the economies. The William Mann Company has vindicated its ability to unite quality with the



PAPER

STOCK

ROOM.

lowest price, through the independence of its purchasing policy as well as its addition of improved methods.

This department is at the top of the building, and from its windows one commands a vista that is both picturesque and suggestive. Looking to the West, an important section of the business establishments lying between Fifth Street and the new Public Buildings of Philadelphia spreads away at some distance below the height. The smoke arising from the numerous chimneys, the tall buildings which here and there rear themselves into the landscape, and the names which appear upon the sides of the various establishments convey forcibly an appreciation of the industrial activity of a great city. Towards the North, where the adjacent river front of New Jersey stretches along the horizon, are some of the extensive manufacturing plants for which Philadelphia has won an enviable reputation. Cramp's shipyard is quite distinctly seen, and the waters of the Delaware, dotted with white sails or smoke-belching steam craft.

In the process of manufacture, orders are brought up to this floor as the initial step, and to each order is carefully apportioned the allotted quantity of paper, which is carefully counted out to conform with the previous estimate. It then descends with the numbered order, which in all else has lost its identity, to lower floors, according to the treatment which is to be given it. If it is to be ruled for blank-book work, it descends to the Ruling Department upon the seventh floor; if not requiring such operation, it is sent to the Printing Department, as the case may be. It then returns for subsequent manipulation.

Perhaps the two most prominent branches of the manufacturing business carried on by the William Mann Company are comprised in the production of blank-books and copying papers. All branches proper to the business of manufacturing stationers, within broad lines, are incorporated in the various departments of the factory. These will be touched upon in the course of description, but in order that some idea may be gained of the steps taken

VIEW
LOOKING NORTH



VIEW
LOOKING WEST



1875

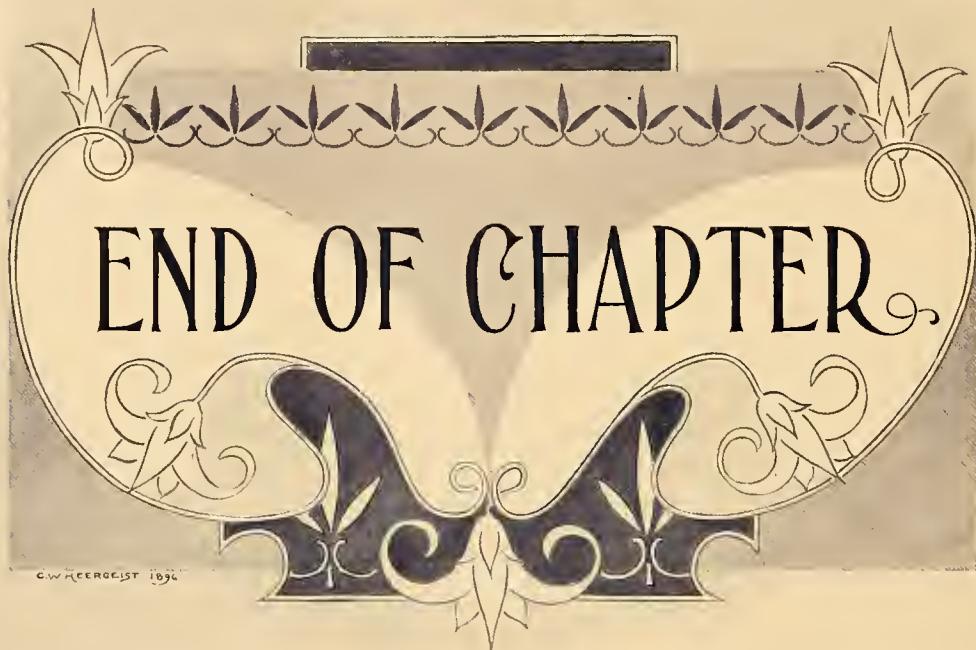
in the more important manufactures mentioned it is deemed advisable to tell how blank-books are made and how copying paper is converted into book form for distribution to customers. Only the operations will be here enumerated; the way they are carried out will receive attention in the proper places.

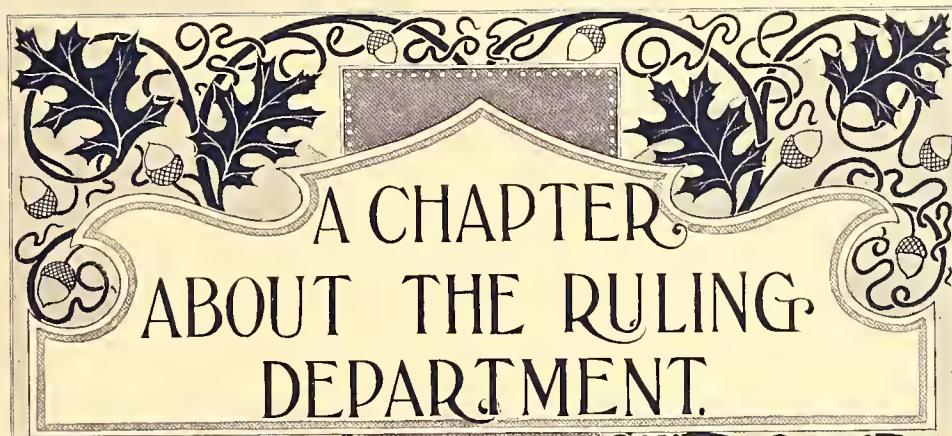
In producing a blank-book, the paper is first ruled or printed, as the case may be, which is accomplished either in the Ruling Department on the seventh floor, or in the Printing Department on the second floor. The paper then passes to the fifth floor to be folded. If a small lot, folding is done by hand; if a large lot, the operation is done by machine. When folded into sections, the paper is made up into books. Waste papers are added, and the books are sent to the sewers. Most of the small jobs are sewed by hand, while the large ones are handled by machinery, if within a certain size and thickness. The books then ascend to the sixth floor, to the Forwarding Department, where they are lined with muslin. The latter being dry, they are cut on front and then glued up. When dried again, the books are rounded, cut on the ends, greened and boarded, and (if half-bound) put in leather after boarding. They are next sided with cloth, paper, canvas, corduroy, and like material, and after drying are sent to finishers, who do the lettering in gold and apply the minute details of completion and elaboration. The books are pasted up and placed in the press to ensure smoothness to the waste papers, as well as solidity to the volume. If full-bound, the books are strapped after they have been cut and greened. When dried, they are then boarded and patent backs are made, consisting of one or two extra tar trunk-boards, made for the purpose, according to the thickness of the book. Where the book is thick two boards are glued together after being formed to suit the curve of the back. Raised bands or hubs are then put on, after which the books are put in leather and follow the same procedure as the half-bound books.

Copying paper is converted into bound form upon one floor, where all the operations are performed. The thin sheets are cut

to size, counted and arranged into sections, and sewn into what is practically an endless book at an ingenious machine, from the product of which a sufficient number of sections are separated to form a book of the thickness required. These are bound up into books and numbered, or rather paged, with astonishing rapidity.

Few who use account books or articles of similar utility give much thought to the ingenuity and expenditure of skill therein embodied. It is hoped that some conception of the latter may be had in the visit to departments wherein the actual processes are going on.



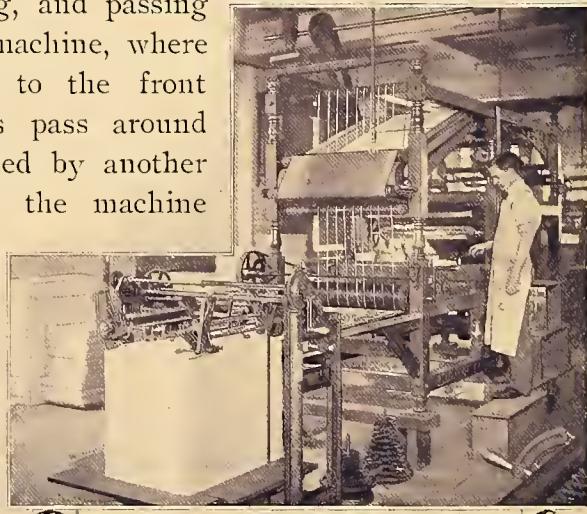


A CHAPTER ABOUT THE RULING DEPARTMENT.

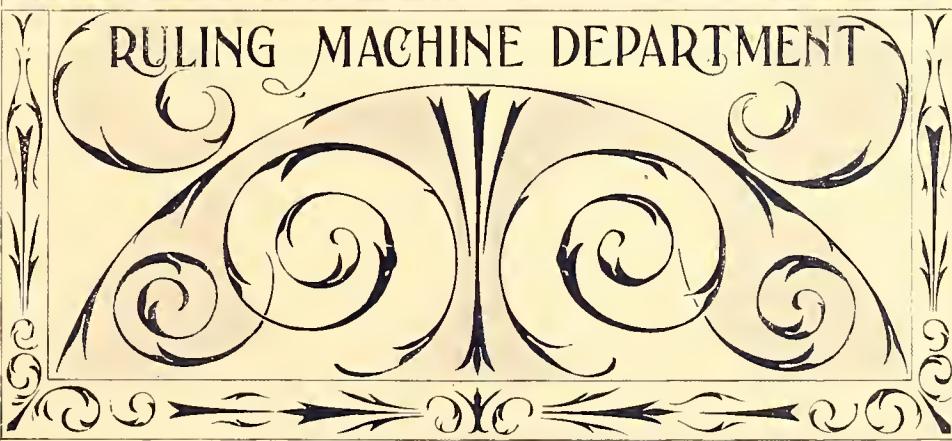
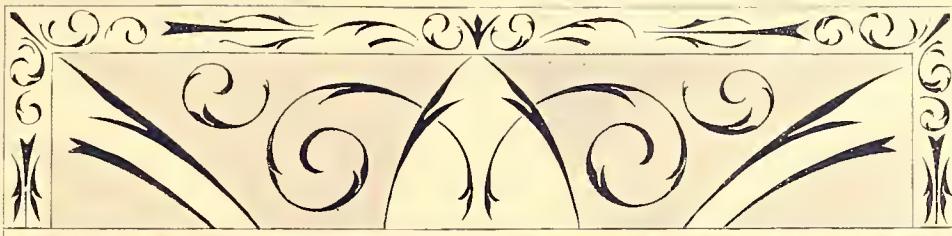
RULING, as applied to paper, is a distinct art in itself, entirely independent of, although intimately associated with, blank-book making. It is, moreover, the first process to which paper is subjected in producing books wherein records of income and expenditure, etc., are to be kept. As a strictly mechanical process, it requires the niceties of delicately adjusted machinery to give best results. As an art demanding some chemical and expert knowledge, it requires supervision of an intelligent kind. It is divided into classes, according to the character of the lines ruled and the directions thereof. Where a ruling is given the paper, which covers it along its entire length or width with parallel lines (usually ruled on with pale blue ink), the method is known as "faint lining." Where the paper is ruled with vertical lines, beginning or terminating at one or more definite points on the sheet, the method is called "down lining" or "stopwork." The latter ruling is variously done in dark blue, red or green inks.

We are now on the seventh floor of the William Mann Company's factory, where all the paper-ruling is done. To this point are sent the different grades of linen ledger papers from the floor above. They are received by the ruler, the condition of their edges is carefully examined, and the latter are squared at the cutting machine, if that is necessary. Those ruled on one side require but two squared edges; those ruled on both sides require three edges to be trimmed.

Ruling is done, with the general run of job-work, upon pen-ruling machines for one side, and the large runs sent to automatic machines, technically known as "double-deckers," into which the sheet is fed automatically, ruled up-and-down and across by the same means, and then reversed and operated on the other side, making the process a perfecting one. In pen-ruling machines the pens, which are a special device, are carried in a clamp, and receive ink from a piece of flannel saturated with the color. At each end of the machine are two wooden rollers, around which revolves a web of moleskin cloth, a series of cords holding the paper where it belongs and feeding it along while being ruled. The paper is fed by means of a gauge in front of the machine, so that it accurately enters and is borne by the cloth beneath the pens, receiving the ruling, and passing to the back end of the machine, where it is carried by cords to the front again. The ruled sheets pass around the front roller, are carried by another travelling cloth through the machine and deposited in a receptacle, to be jogged up by what is known as a "lay-boy," which evens up the sheets in a pile so that they will lay uniformly.



HICKOK, DOUBLE DECKER
WITH AUTOMATIC FEEDERS.

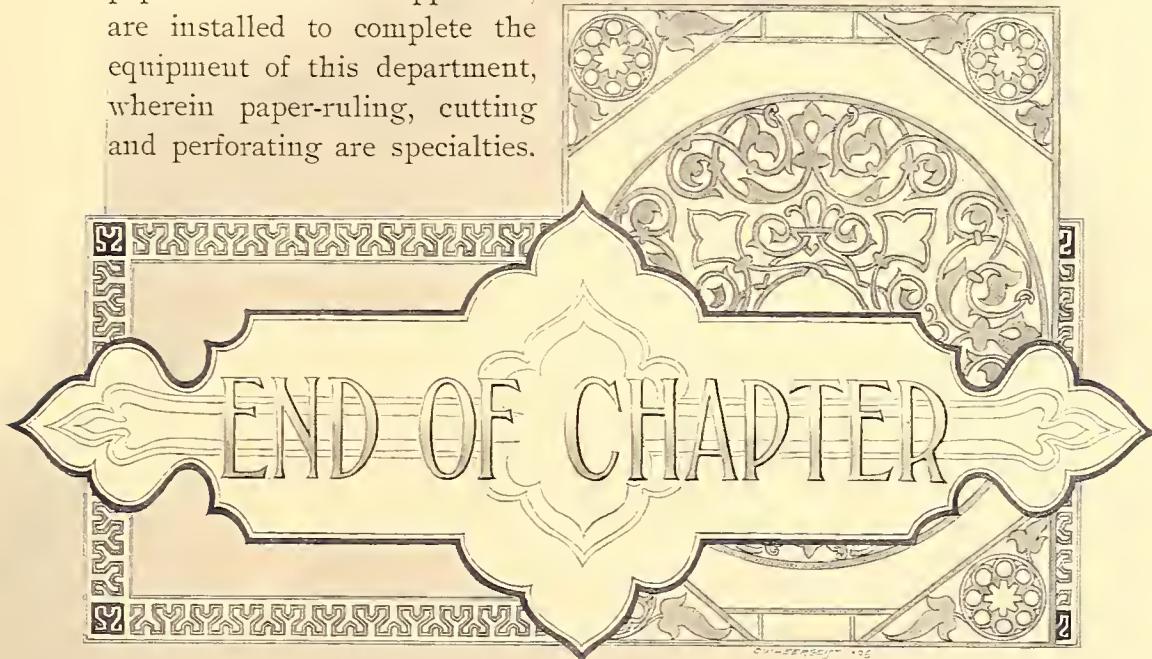


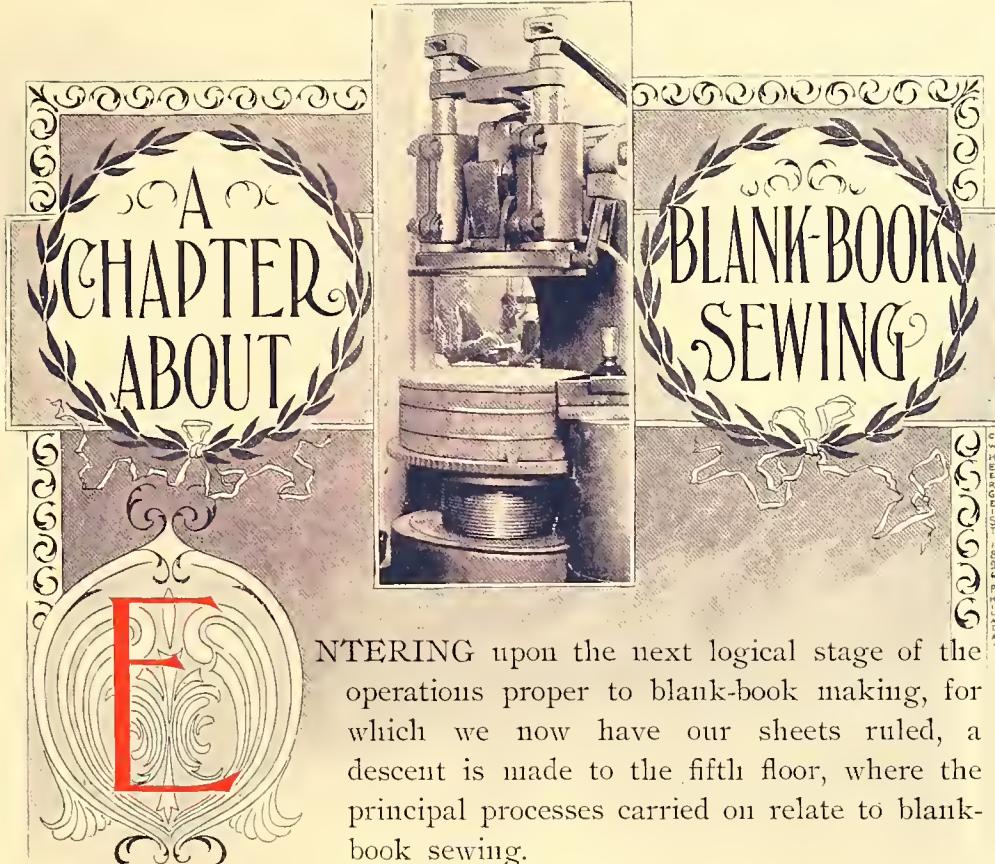
In the old days of handicraft, ruling was done by manual means, and the transition from such methods to the wonderful automatism of the latest machinery exceeds belief. The "double-deckers" employed upon this floor for extensive runs are of the most approved pattern, built by an old and enterprising concern. As seen in the illustration, the sheets are laid in a huge pile in front of this machine, and are fed by an extremely accurate bit of mechanism into the machine, sheet by sheet, passing beneath pens to receive one ruling, on one side, and then being reversed in their travel to receive a ruling on the other side. The capacity of such machines are very great, and only the largest runs can be profitably handled with them. It is such auxiliaries to production that raise the capacity of manufacturing establishments to the amazing extent of latter-day consumption.

Sixteen Hickok ruling machines are located upon the seventh floor, under the superintendence of William A. Arnold, who has been in the employ of the company for 34 years. It was Mr. Arnold who set up and ran the first ruling machine when this company began manufacturing in 1864, since which time so many improvements have been added to conform with the advance of trade. The processes in force upon the seventh floor extend beyond paper-ruling. Here are stored (as also on the eighth floor) an immense quantity of bank checks, belonging to various banks and banking houses throughout the United States, and kept in stock for the convenience of these establishments. From this stock books are ordered for depositors, with the names of the latter printed therein. Much lower prices naturally attend orders in large quantities than those where single lots are asked for, an advantage which banks have not been slow to avail themselves of. The production of checks and their



conversion into book form is a very large branch of industry, and no minor portion of the trade is held by the William Mann Company. At the last taking of stock, 1,500,000 customers' checks were tabulated, and more than 2600 banking concerns recorded as patrons. A number of automatic perforators are employed in manipulating the printed or lithographed sheets—quite a contrast to the old style of perforators, wherein the weight of a man upon a treadle was required to effect the perforations. In these new patterns of machines a slight touch upon a treadle releases a pin, which causes the depression of the head carrying the perforators to be actuated by power. Checks, notes, drafts and kindred blanks are rendered detachable from stubs by such means. Paper-cutting machinery of the heaviest and most recent build, as well as machines for folding paper and other apparatus, are installed to complete the equipment of this department, wherein paper-ruling, cutting and perforating are specialties.





ENTERING upon the next logical stage of the operations proper to blank-book making, for which we now have our sheets ruled, a descent is made to the fifth floor, where the principal processes carried on relate to blank-book sewing.

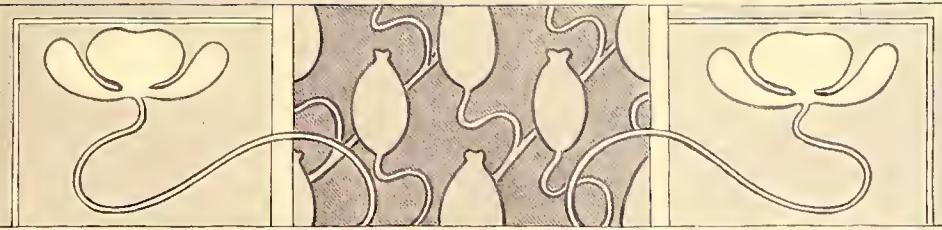
In the process of blank-book work, books to receive printed headings are sent to the Printing Departments first of all; but those not to be printed go direct to the folders, and are then made-up. The sheets are scrutinized carefully by the operative at this point, no finger-marks or stains being permitted, nor any imperfect ruling or printing. Folding is a skilled operation, as uniform margins must be obtained. When this has been effected, the books are counted off and are properly divided. If heavy, small straps of muslin are pasted into the first and last several sections of the book to give strength, as soon as folding is done. The sheets are then left to dry. If the book is to have divisions with lettered tabs, these are fastened to the book by two strips of muslin applied on either side of the leaf. The sections are next well-rubbed down with a tool called a "folding stick," and the heavy books

pressed to give solidity and firmness. Sewing is now proceeded with. The mode of sewing varies in accordance with the style of binding determined upon, whether "half-bound" or "full-bound." Half-bindings are those with leather backs and corners, and the sides of other materials, such as cloth, paper, etc. Full-bindings are those of full canvas, or leather, with corners of russia leather, or ends or bands of the same material; they also include those where "full extra russia" constitutes the appellation. It is unnecessary to give the variety of technical classes into which bindings for blank-books are grouped; those given are the broad classifications.

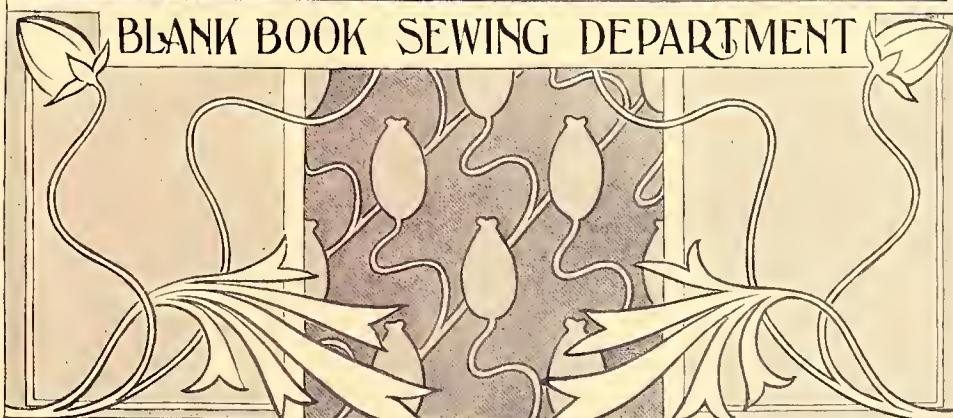
Before sewing the books end-papers are inserted as leaves both at the front and back of the book, and the substantiality of the stitch exactly parallels the weight of the book to be unified. The larger the book the stronger the sewing. No flimsy catches of thread will do here. One of the huge ledgers or registers which go out of this establishment to banks and kindred institutions is intended for rough handling and constant usage. Everything entering into it, whether of material or of handling, must be the incarnation of permanency and flexibility. The book must not only be impervious to careless treatment; it must lie open easily and flatly. The covers must not warp; the backs must not crack off and split away from the paper; all attributes must be just so. As direct consequences of these requirements, the amount of skill and ingenuity which enters into the production of a blank-book of the better-class is well-nigh incredible.



SMYTH
BOOK SEWING MACHINE.



BLANK BOOK SEWING DEPARTMENT



HECHT & CO. 1894

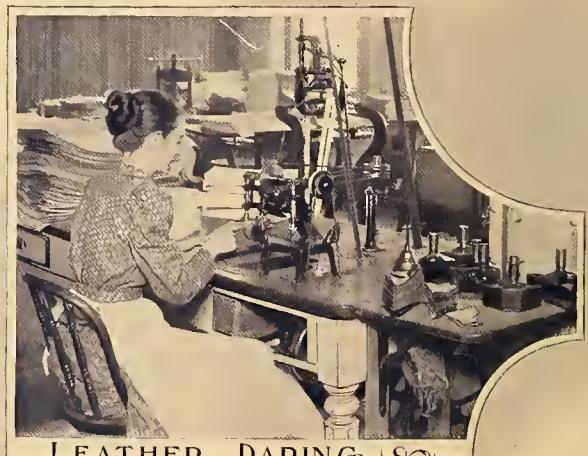


The difference in strengths of blank-book sewing resides in the number of bands upon which the book is sewn, as well as the strength of the tapes and thread employed. The object in view must be well kept in mind, viz.: that the union of each single part must be effected not only among themselves, but with relation to the finished book. To

disregard any one of the processes is to admit an element which can never be rectified when its stage has been passed.

From time to time, as the sections are sewed, they are tapped down well with a hammer and rubbed, so that the glue will have no difficulty in entering where it belongs. Swell enough is left at the back to furnish the spring needed to the bound book. When sewn, the slips are tightened, small muslin straps are pasted where the end papers join the back, and the books are trimmed at fronts and edges.

The Blank-Book Sewing Department of the William Mann Company also contains that half of the bindery which is devoted to the "half-bound" work, whereas the "full-bound" work is performed on the sixth floor. On the fifth floor is also located a department unique in itself, that of leather-cutting, where all of the very expensive leather used is cut by professionals, whose functions are to reduce wastage to the smallest possible fraction. Under the old plan, each "forwarder" cut his own leather, which, with undue haste or carelessness, frequently resulted in great waste. As the policy of the company is the elimination of the disadvantages which form so many sinking funds for profits in less conservative managements, this feature of the trade



LEATHER PARING

has been revolutionized, as well. The plan has resulted in a large saving of stock and time, and these it is the aim to place to the credit of the customer, who reaps the advantage.



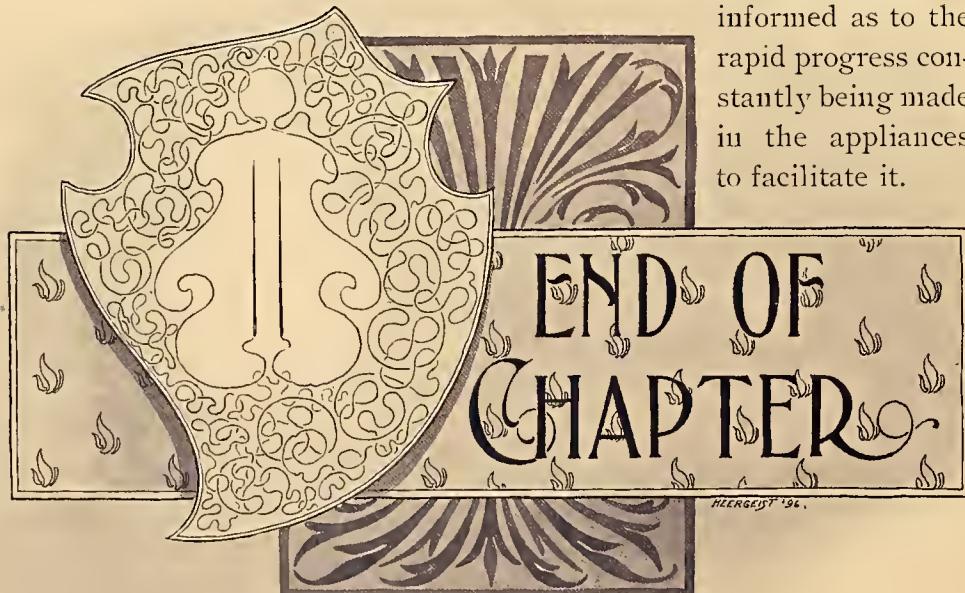
LEATHER CUTTING

In addition to the operations mentioned, the fifth floor is equipped for tablet-making, numbering checks and drafts, etc., and for binding checks as well. It is practically a department for making-up, preliminary to the remaining processes forming a part of production. The facilities accordingly partake of this character. Wire-stitching and stapling machinery, for side and saddle stitch, are employed, as well as machines for sewing, notably the Smyth sewing machine, of which an illustration is presented. This remarkable piece of mechanism receives the sections of the book, sews them together, and sews the tapes to the backs at one opera-

tion, and feeds them in a continuous book to the back end of the machine, where a girl separates the number of sections required. The capacity of the machine is governed by the rapidity with which it can be fed.

As checks are wanted, they are turned into this floor for binding. Seven rapidly running check-numbering machines are here kept busy on this kind of work, capable of numbering up to six units, and some to seven units, consecutively. There are also corner-cutting machines, for cutting out the corners for blank-books, folding machines, hydraulic and standing presses, and a remarkable little machine for paring down leather as thin as a sheet of tissue paper. In this, as in all other departments, it is the aim of the management to have the most expert workmen, to permit none but the best materials, and to utilize only processes of known value and reliability. In blank-book making efficient superintendence is as necessary as extreme care. Speed is desirable, but haste is forbidden. Each process in the entire chain demands as much caution as any other, and when a book is turned out it is as near perfection as skill and training can accomplish. A well-made blank-book is in actual fact a work of industrial art. Into its production enter decades of earnest experiment and invention. Few who use blank-books realize this, or, if they appreciate the character of the work, keep themselves

informed as to the rapid progress constantly being made in the appliances to facilitate it.





NOTWITHSTANDING the indefinite meanings of trade phraseology to the layman, the terms employed in blank-book making are quite simple and appropriate. There are two broad processes that await us as we follow the blank-book through its various stages, and these are known respectively as "forwarding" and "finishing." By the first is meant all operations connected with covering the book, putting it between boards, etc., etc. It is the series of steps whereby the book is carried forward to the point when finishing touches are applied. By "finishing" is meant this last chain of operations; it is the work of the artist rather than of the artisan. Here are introduced those artistic elements which converts the blank-book into a thing of beauty. The "forwarder" then is the handcraftsman who cases

the book and covers it; the "finisher" is the artist who ornaments and completes it. Both processes are carried into effect upon the sixth floor of the establishment, and here also it will be remembered that "full-bound" work is done. A large corps of adepts in each branch of the art is employed, beneath whose dexterous hands the unshapely masses of sewn paper assume form and comeliness.

Our blank-book has been sewn; it must now be forwarded. The book, as made-up, is first of all lined-up with muslin, after which the front is trimmed. Gluing is the next operation. The functions of this very essential manual process is self-evident; the sewn sections must be both firmly and closely united to each other, strength being a consideration which no forwarder will dare to disregard. When dry, the book is rounded in order to give the curvatures at back and foredge. The workman places the book upon a solid table or an iron block, and with the fingers of the left hand gently urges the foredge towards him, the right hand in the meanwhile swinging an implement known as a "bench hammer," with which he taps the book along its back until the latter is so perfectly rounded that the arc of a pair of compasses equals the curve effected, and until the foredge will exhibit a smooth and uniform curve with no protruding surfaces. The books are laid between boards and subjected to a moderate pressure for some hours before the next operation begins. They are cut or trimmed at head and tail (the ends), and are ornamented on the edges with the color that is desired, green being mostly used in this establishment. There are three ways of imparting decorative finish to the edges of a blank-book: the first of which is "marbling," the second "dyeing," and the third, or most expeditious and substantial, the operation called a "waxed edge." This latter, which we alone need describe, is done by dissolving beeswax over heat, and sprinkling it evenly but lightly over the edge to be colored. The color is then passed over the edge with a brush or sponge, without regard to the spots of wax beneath. After drying, the wax is scraped off and by burnishing a brilliant gloss is imparted. We infer that the



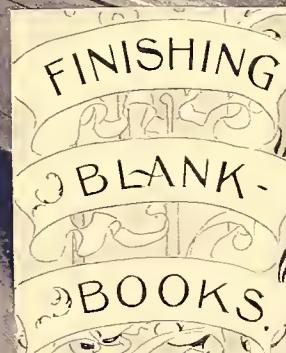
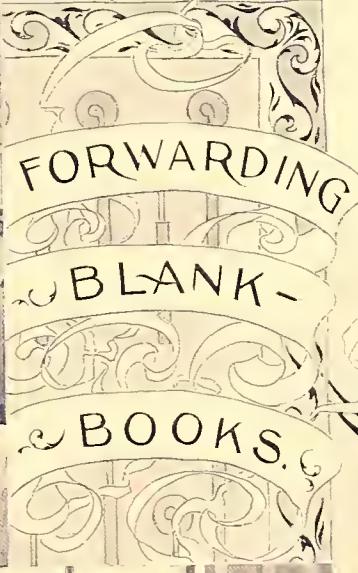
INTERIOR OF
BLANK-BOOK
DEPARTMENT

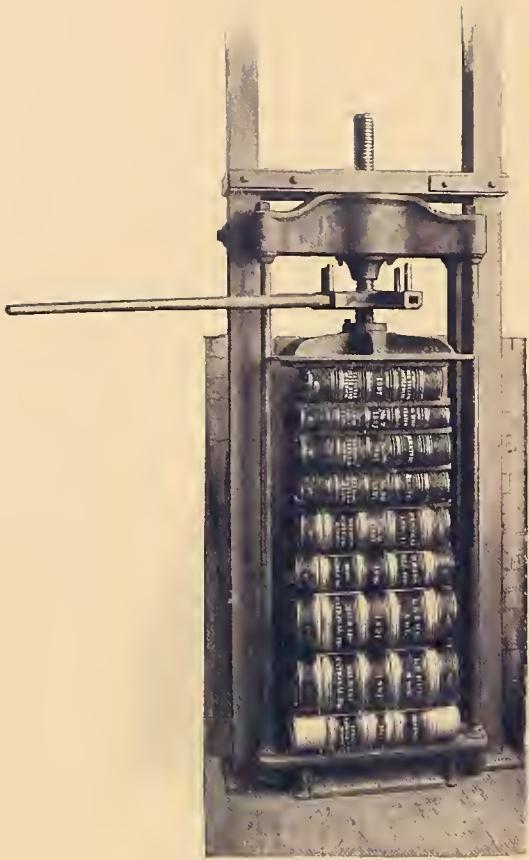
book is to be full-bound, like one of those imposing books of account seen in the numerous exhibitions throughout the country where the William Mann Company has always been adequately represented. The book, being "greened," is next strapped-off on the back, and making the "lugs" or "stays" is proceeded with. The covers must be prevented from bending in on the book when closed, and so it is necessary to effect an elevation between them and the book at that point. Accordingly, the workman glues the outermost leaf of the book, laps it around and around until the folding brings it close to the edge of the back, making a stiff stay at that point. This is later on glued between the boards forming the cover.

The forwarder now takes a piece of leather (flesher or split goat) and presses it well down on the back, letting it overlap about two inches on either side. He glues this plentifully, draws it rapidly and tightly over the back, and rubs it down well to ensure adhesion. The boards are next applied, already previously cut to the proper size and strength in accord with the weight of the book to be made. The William Mann Company own the rights for the best methods of making flat-opening blank-books, whereby a perfect writing surface is presented when a book is opened at any of its parts. These methods it is unnecessary to describe.

Being trimmed to the proper size, the boards are ready for use. Patent backs are made—the trade name being "spring backs"—by cutting tar trunk-boards the same length of the boards for the front and back, letting them be slightly wider than the back of the book so as to overlap on either edge. These tar boards are moistened with water, subjected to heat and formed to suit the curve of the back. They are drawn on the book with a piece of canvas after this is done.

On large ledgers and similar books there are raised projections, called "hubs," at the back. These are glued onto the back of the book. Russia leather is then put on and well rubbed down, when the book is again placed in the standing press. The leather or





canvas covers are then applied, when the book leaves the forwarder to be finished.

Taking the book, which is yet far from complete, the finisher first of all trims down the russia leather with neatness and dispatch, buffing off the flesher with powdered pumice to freshen and clean it. The black bit of leather to receive the title is then cut to fit into the panels between the bands and is pasted on. The ornamentation of the back is now in order. Good taste dictates that the decorative scheme shall be simple and yet beautiful. It is the function of the upper blank to receive the designation of the book; that is, what purpose it is intended to conserve. In the centre panel appears the year, etc., while the panel at the bottom receives the firm name.

These are stamped on or impressed on by hand, in gold. Russia leather on the sides are treated in the same way as the back. The tooling is done upon the scale of elaborateness or simplicity desired by the customer, who may either wish to have a perfectly plain front and back, or covers of more decorative character. There are many ways in which geometrical figuring is laid on, and each different. Heated rollers enter into almost all of them, a small tool being used to impress a section of the decoration if hand-tooling is employed. An artist first draws the design, after which the finisher interprets it upon the book cover. When finished, the blank-book is pasted up to give smoothness to the waste-papers and is placed, with its fellows, in the standing press. It is then paged, examined by the foreman, and passed down to the shipping department.

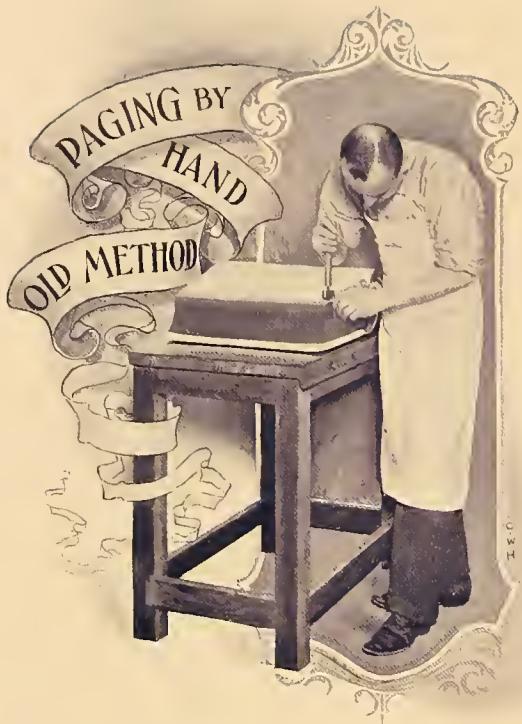
The Blank-book Department of the William Mann Company is equipped with whatever improvements mechanics or inventors

have provided. The system tends towards cleanliness and expedition. Here, one sees blank-books of every kind and description, from the small low-priced account-book for ordinary uses to the mammoth register or ledger for use in public institutions, with rich russia sides and ornate gold-tooled scheme of decoration. There is no size of book too large for production, the department having turned out a register, upon one occasion, weighing 360 pounds, bound in the finest russia, and embellished with original gold-toolings. This volume was exhibited at the Cotton States and International Exhibition, and attracted considerable attention, both from its massive bulk and beauty.

A most suggestive process is that of machine-paging, whereby a girl can turn out many times the work of a man, under the old method of hand-paging. Formerly, the workman was compelled to apply each number by a tool, patiently and laboriously going through the pages of a huge book until it was separately paged, leaf by leaf. Now, the operative merely separates the leaves of the blank-book, to permit of the passage between two of them of an endless numbering chain carrying the numerals, and by working a treadle an impression is made.

In this department are located the very latest machinery and appliances. There is a large steam stamping press, doing with dies what was formerly done by hand upon the covers of inexpensive books, and effecting a decoration thereupon by means of heat or scorching; also smaller machines for stamping titles and sides of smaller books. There are hydraulic

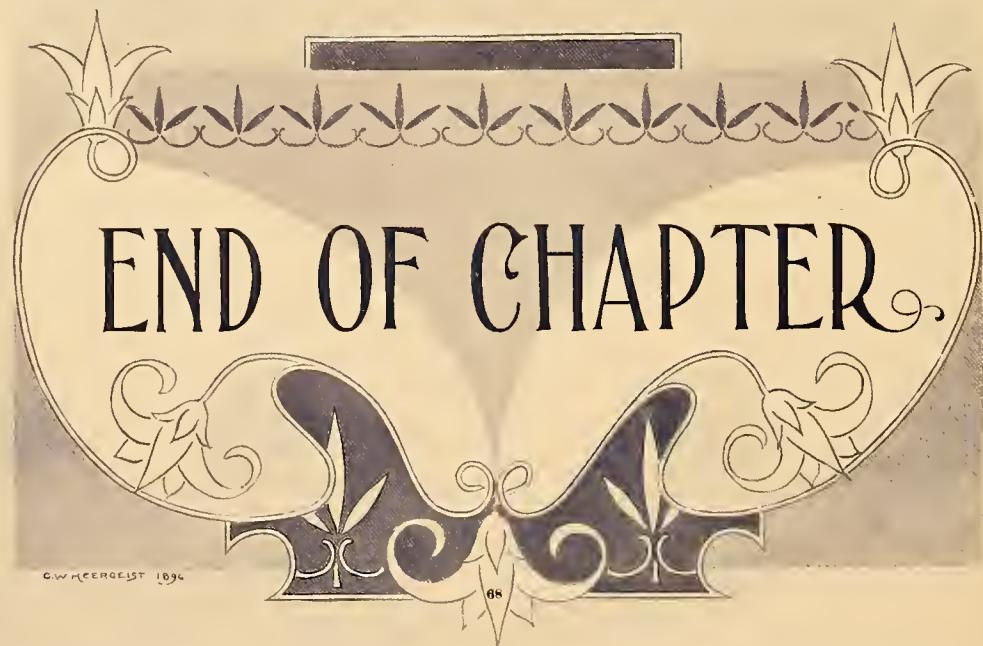




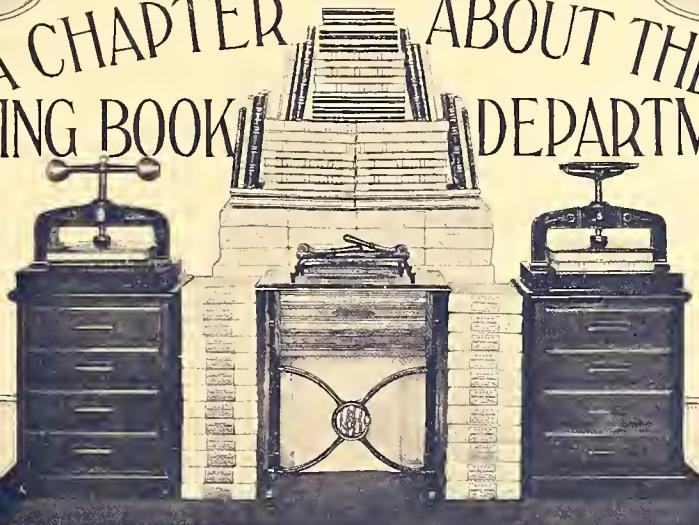
presses and standing presses, steam back-rounding machines for forming the curved back already described, and machines for cutting and analogous operations. The old method of heating glue with gas or steam has also been dispensed with, and electric glue pots are employed instead.

The "finishers" in this department are located at a series of tables next the windows on the north side of the room, so that they may have the best light upon their work; among them are the most skillful workmen obtainable in this country. All supplies are carried in large quantities, and the boards for the backs are

made up a long time ahead, being kept in drying bins so as to ensure seasoning. Whatever can make production better, more economical and more in accord with the progressive policy of the company has been adopted here, as in other departments.



A CHAPTER ABOUT THE COPYING BOOK DEPARTMENT



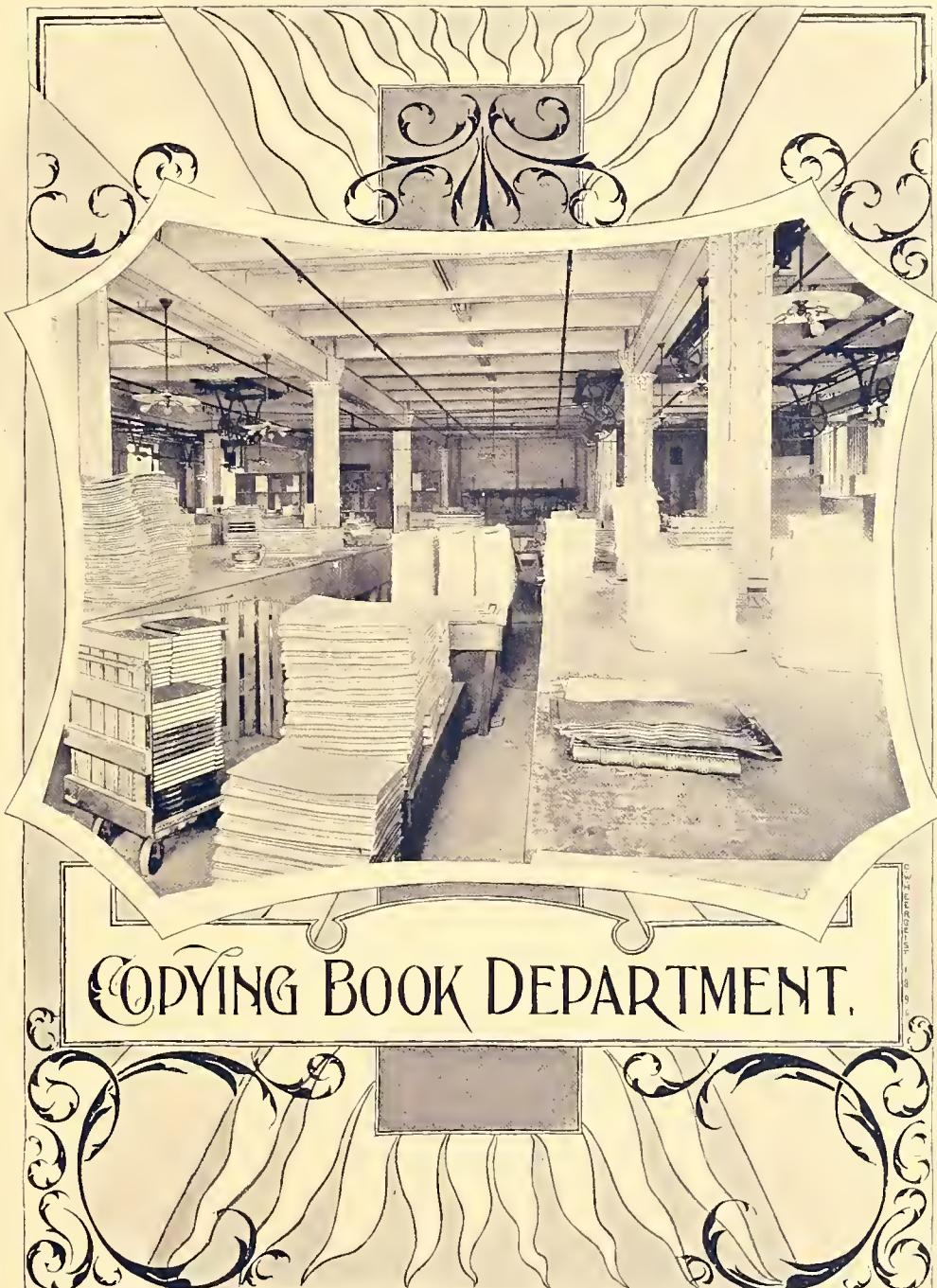
INTENSE as is the competition which characterizes the commercial realms to-day,—partly as the result of superior mechanical means of production, partly as the result of an accurate knowledge as to what production costs,—there are specialties in which it is minimized.

Such lines of manufacture enjoy this comparative immunity solely because of prior occupancy and a possession of certain methods which, at some one point of them, are not known. The William Mann Company has been manufacturing copying papers for many years, utilizing a conception originating with the founder of the house and steadily improving its means and methods until both a high standard of excellence and the lowest margin of cost in producing have resulted. This superior economy it has been the policy of the house to augment, never departing from whatever could elevate

the quality of its output, and giving the customer the benefit of its improvements. We have seen, while at the mill in Lambertville where copying papers of all grades are made, the process of converting raw materials into the finished sheet of translucent paper, or tissue copying. We have now to watch the interesting modes of converting the paper, which in turn has become our raw material, into bound books of different kinds for use in the trade consuming them,—a trade comprising firms, corporations and railroads in this and other countries.

Let us leave the Stock Room on the eighth floor, whither we revert for a continuous knowledge of the system observed in the department before us, and descend to the fourth floor, where we shall find ourselves in an immense room, surrounded with piles of books in every stage of manipulation. The implements employed by skilled handicraft appear on every side, the steady hum of industry making a suggestive accompaniment to the sight of a large corps of workmen here engaged. We are practically in another bindery, but one where every process and mechanical device bear specific reference to the end to be conserved. As the business is, in a large measure, original, so the machines bear an analogous impress, some of them being of exclusive design employed nowhere else. The process is not unlike that with which we have already become familiarized. The paper is received from the eighth floor, bearing the invariable ensignia of identity in the shape of the number given the job, and goes through the operation known as "making-up." There are distinctions of terms in technology, as elsewhere, and making-up relates to those functions which, in the publishing business, begin with "collating." With books printed in signatures, the operation of getting them together into unified form is called "gathering"; that of affecting their juncture is called "collating." "Making-up" is the kindred process where books without signatures, as in blank-books, etc., are handled.

The sections of copying paper, assembled together in sections containing a certain number of sheets each, folded once in the



COPYING BOOK DEPARTMENT.

middle so as to be the approximate size of the book, are sewn by the book sewing machines upon this floor, the bands being applied at the same time. The amount required for the book is cut away from the continuous book forming at the back of the machine, when after certain details are attended to the book is rounded and cut, then paged and finally bound in the style desired.

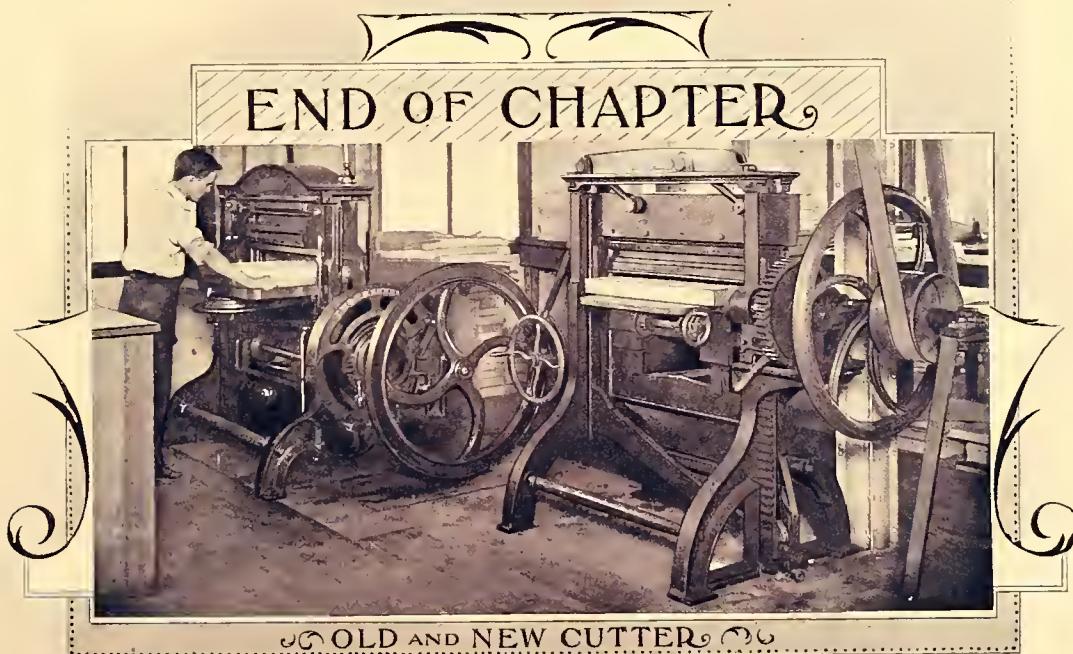
Being devoted exclusively to the production of copying books, the fourth floor has been made to conform in all respects to the requirements of this branch of manufacturing alone. Hence the machinery and appliances have, as before mentioned, a specialized character. The sewing machines upon which the books are united have been constructed with particular reference to copying-book work, and are at once extremely rapid and ingenious. To watch the operative open a section of paper at its fold, lay it in the machine, and then touch a treadle which sets into play devices that do the balance of the work, is to gain an object-lesson in mechanics. By means of the power thus released, the mechanisms lift the section beneath a head carrying a series of semi-circular needles, each travelling in the direction of its own curve to pass through the leaves of paper, effect a stitch, and pass the section backwards. The endless strip of tape, several of which are at the top of the machine to be sewn upon the back of the book as "bands," is also attached in a manner somewhat the same, instead of a needle another device being used. It is with kindred ingenuity that the visitor contacts as he stands before the long row of paging ma-



PAGING MACHINES.

chines, a partial view of which is shown, with the rapid click of the descending numbering heads falling upon his ears and the dexterous fingers of the operatives lifting leaf after leaf to successively page them, before his eyes. These machines not only represent an exclusive design of the company's, but they are manufactured by the latter, as well, being confined to its plant.

The terminal view to the chapter is instructive as a comparison. Here is an old style cutter standing side by side with the newest of automatic machines, both representing stages of progress attained by the same manufacturer. In the machine to the right, the hand-labor is still great; in that to the left, merely adjusting the machine and placing the paper in position effects the entire chain of subsequent manipulations. One is clamped by devices brought into position by turning a hand-wheel; the other does its own automatic clamping. The improvements thus shadowed forth, are what constitute the differences in manufacturing between the present day and twenty years ago.

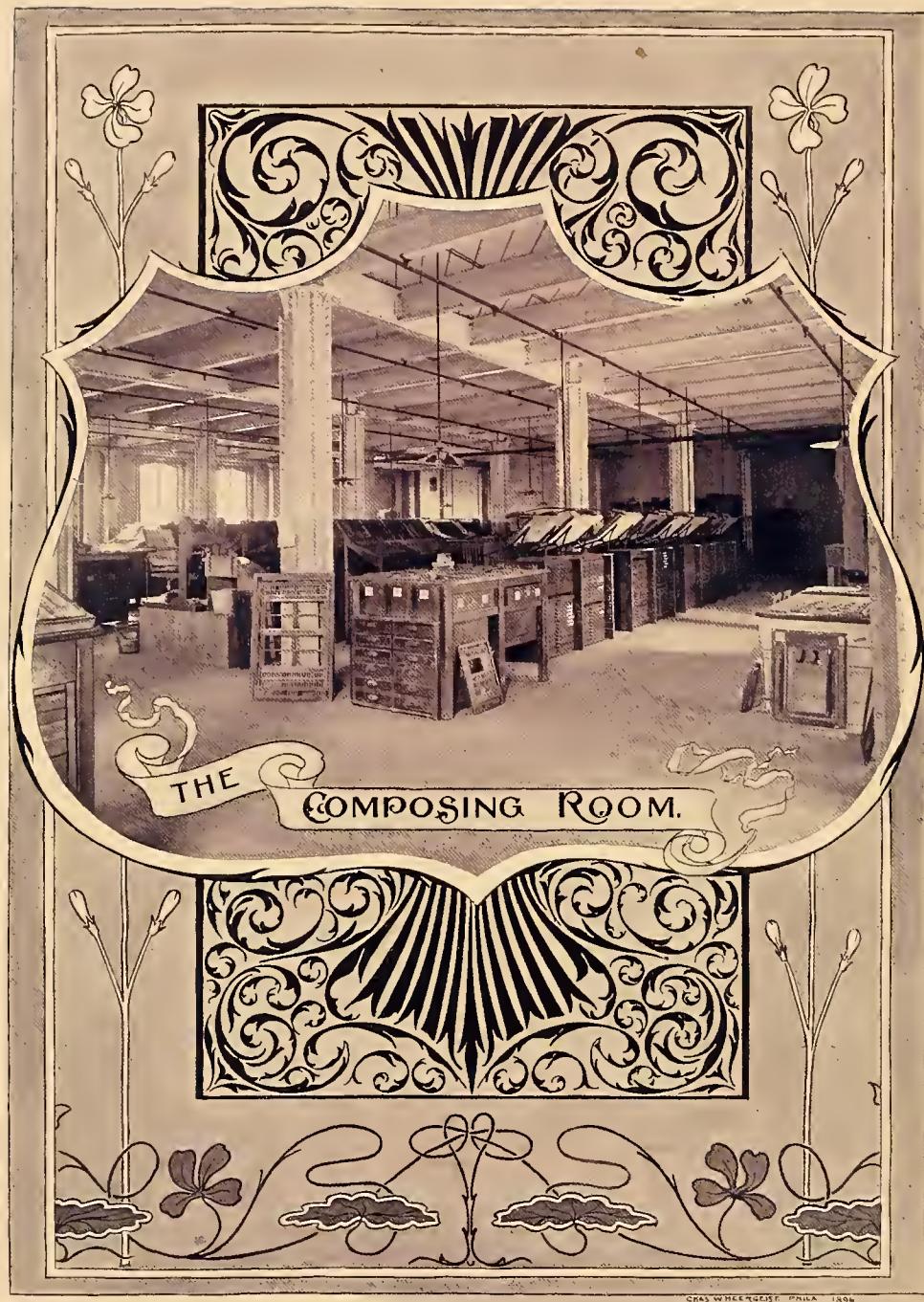




A CHAPTER ABOUT THE PRESS ROOM.

B

BEFORE it is possible to put into operation the processes proper to binding, it frequently transpires that a job requires a prior treatment in the Printing Departments. These are divided into two separate functions, and call into continual use an extensively equipped plant occupying the third and second floors. Upon the third floor, usurping the greater part of the space, is the Composing Room, of which a partial representation affords an idea of its size, and in this department are carried a stock of type-faces and display-letter adapted to every requirement of jobbing as executed in the establishment. The arrangement particularly conserves convenience, and the facilities in the way of stands, cases, and the hundred-and-one little devices that are being daily introduced into the printing business to save labor and time, are proof against criticism from the practical compositor. In the business of manufacturing stationers, which is that followed by the William Mann Company, a department of job-work is a necessity. The same careful management as characterizes



CHARLES WHEELER & CO., PHILA. 1894

the departments already visited is here apparent, wherever one turns. One section of the large room is set apart for a Stereotyping Department, in which skilled workmen effect duplicates of such jobs as demand long "runs" at the presses, thus saving the type from the extreme wear consequent thereupon. To those who are not familiar with the process, it is both novel and of interest. The composed types, locked up in the chase, come to this department, and a matrix is made of papier-maché, etc., from which a cast is taken. The molten metal is introduced into the face of the matrix, thus forming a plate, which, as the matrix was an intaglio, will be in proper relief when shaved down true on the back and blocked type-high for use upon the presses. The process is more expeditious than electrotyping as a means of duplicating printing surfaces, the long delays attending the deposit of copper upon the graphited surface of the wax impression taken from the types in electrotyping requiring hours, where stereotype-casting requires minutes.

Upon another portion of this floor, occupying one corner of the room, is a steam Stamping Department, for doing embossed work from dies of every character. Both hand and machine-stamping are here executed with machines of approved construction. Dies ranging from one inch square to three by eight inches are handled with equal celerity. Stamping is an attractive process, requiring no little skill where done by hand, and such close imitation of hand-functions when done by machine that few machines have been at all successful. The form of machine employed by the William Mann Company was decided upon after careful investigation of the merits resident in the several methods devised. The machine inks the die, wipes it, effects the impression, and restores a fresh wiping surface for the next impression, all accomplished automatically. In hand-stamping, a press resembling one of the old time copying presses is employed. The inking has to be done by hand, and a peculiar semi-rotary wipe imparted with the hand also, prior to the impression. The turn of a lever causes the impression to be made.



Leaving these departments of Composing, Stereotyping and Steam Stamping, and descending to the second floor, we find ourselves in an immense department given over entirely to presswork. Long lines of cylinder presses, pony presses, flat-bed presses and jobbers are here busily engaged in turning out printed matter of different kinds. Such presses are used as possess the best ascertainable utility for strictly commercial work within certain defined lines. Thirteen power presses are kept busy in this department, with beds of a size capable of accommodating small as well as large forms. Nowhere has improvement in the printing business been so rapid and revolutionary as in printing machinery, where the discovery of new movements, radical changes in details, and better adjustment of parts incessantly tend to increase the speed at which sheets can be run, and without any deterioration in quality. Large presses are to-day the secret of economic printing, and their introduction into establishments doing large quantities of work has entirely reversed the traditions which for so long a period dominated the art. To keep on a plane parallel with progress in printing necessitates revision of plant at frequent and periodic intervals. Long before the machinery in a latter-day printing office is unfit for use, with respect to wear, it is superseded by newer machinery, of more scientific nature. It is the policy of the William Mann Company to maintain the status of its printing plant upon a level not surpassed by the highest known.



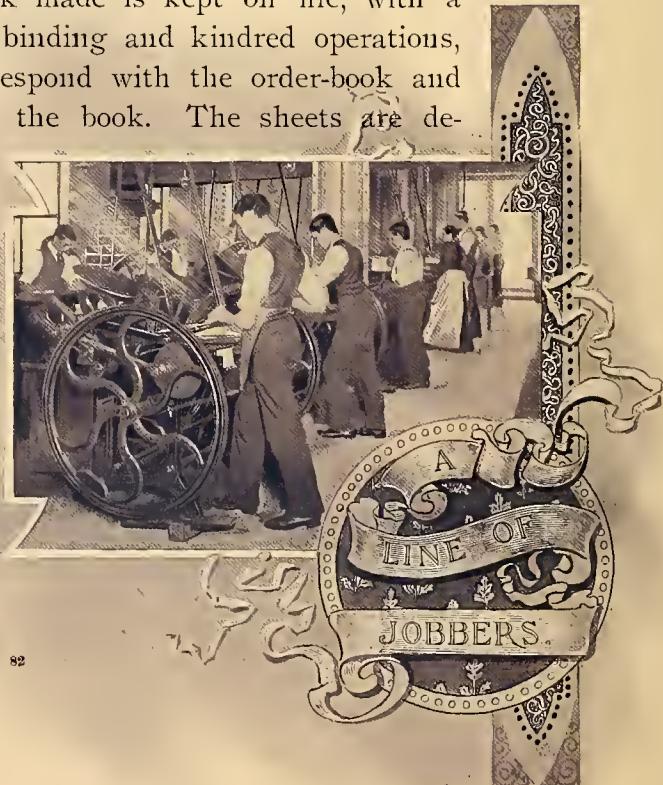
AL large jobs are printed upon the cylinder presses, while those of lesser sized sheets go upon the pony presses. There is a great deal of printing, however, in which the dimensions of the surface to be impressed upon the paper are smaller than the capacity of the power presses, and here job presses are employed. They also are run by power, but are called "jobbers" because of their specific adaptability to the general run of diverse printing made up of various "jobs." Fourteen of these presses, known as "Gordons," from their maker, are installed upon the second floor of the factory, constituting an important branch of the Printing Department. Often these are taxed to their utmost in keeping up with an influx of work, the volume of which has been an increasing factor for many years.

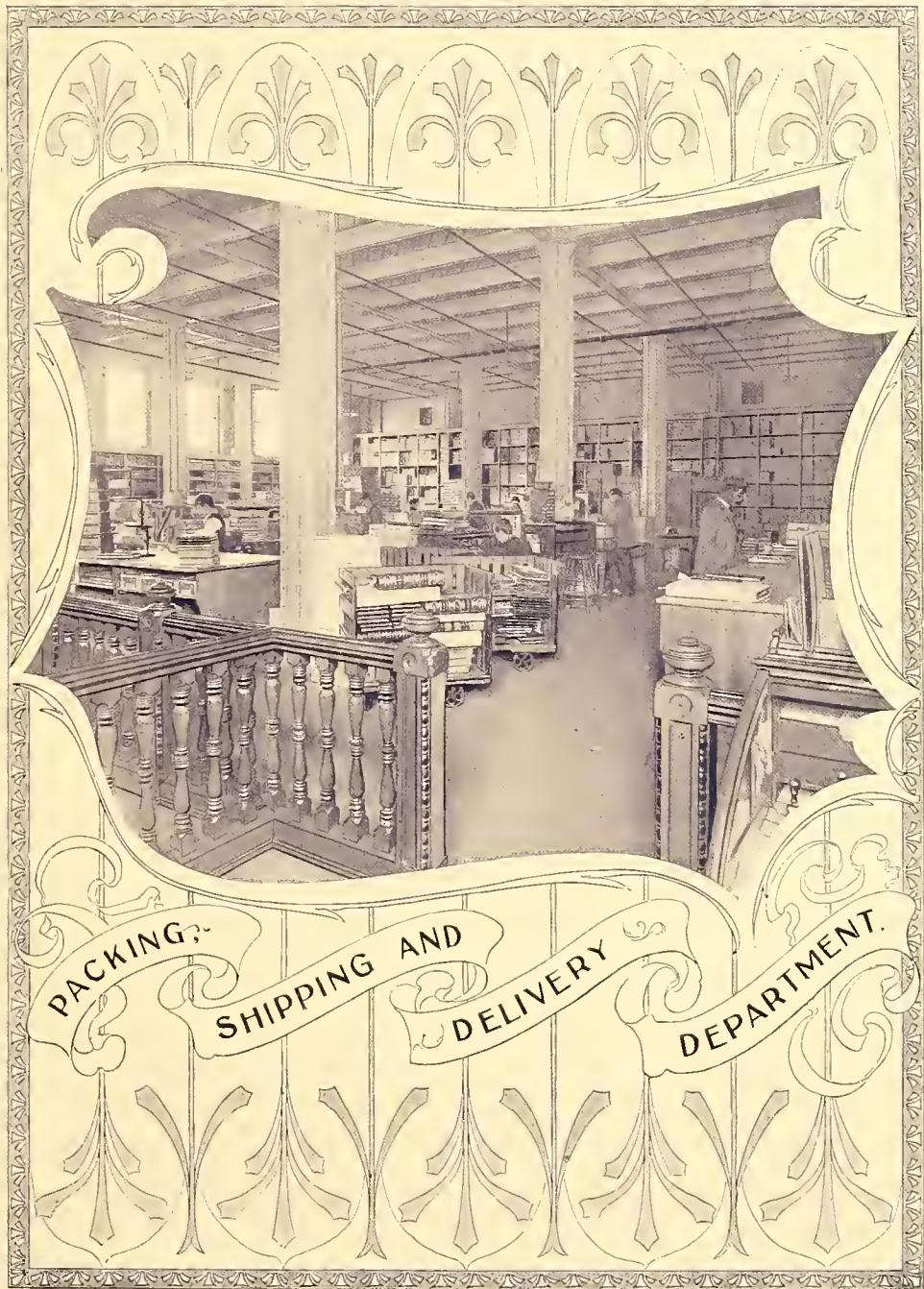
Upon the second floor, in addition to the twenty-seven presses of different styles, is some envelope printing machinery, which, in its operation, exhibits some surprising results. So fast do these machines run that it is beyond the power of the eye to perceive the moment of feeding in the separate envelopes. These latter are laid in a pile at the front of the machine, which is small in size, but quite complex, and one by one are taken therefrom, fed into

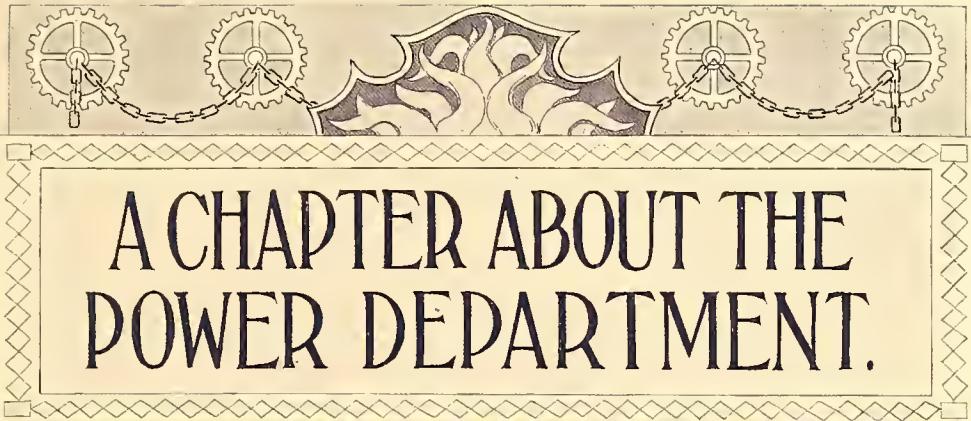
the machine beneath a printing device, and then delivered at the rear end. The adjustments of such machinery are necessarily exact. Should an envelope chance to be placed in the pile with its flap-side reversed, the machine will instantly stop without damage to the envelope or mechanisms. The capacity is said to run up to 100,000 envelopes per day of ten hours work, which is doubtless an expert figure. The average capacity ranges around 60,000, in itself a remarkable output for a self-feeding, inking and printing machine.

We have now seen our job carried through all the departments of its class, whether ruling, printing, binding, etc., and may follow it to the first floor, where the Packing, Shipping and Delivery Department commands inspection. Here the goods are received in a finished state from the respective departments and given a thorough examination by careful and experienced men, after which they are marked ready for shipping. In this establishment it is a rule to keep as far ahead of demand as is possible. Accordingly, a large number of orders are made up in advance of the customer's current requirements, and these goods are stored upon the first floor. A sheet from every book made is kept on file, with a detailed description of lettering, binding and kindred operations, and these are numbered to correspond with the order-book and with a label pasted in front of the book. The sheets are deposited in a fire-proof vault, so that they can be readily accessible when the customer desires a book duplicated.

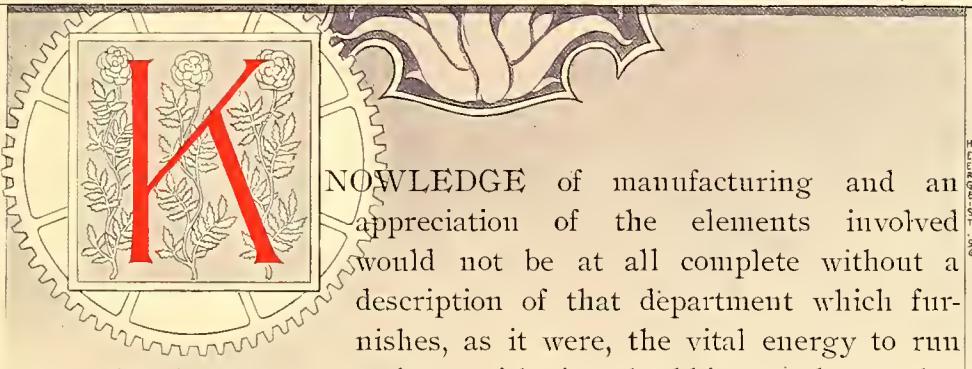
Whatever pertains to packing, shipment and delivering is entirely confined to the first floor, which is the receiving and distributing centre of the entire establishment.





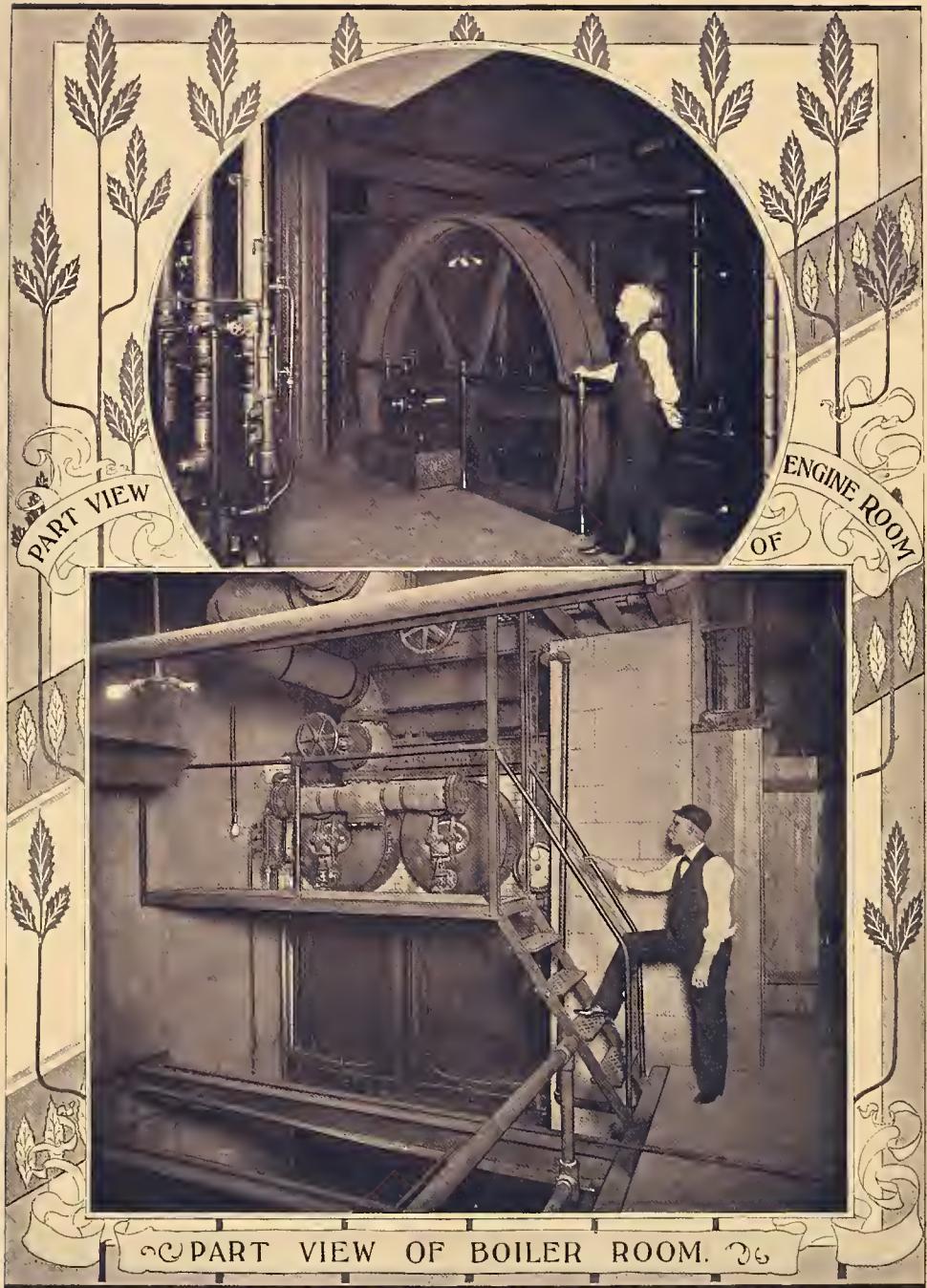


A CHAPTER ABOUT THE POWER DEPARTMENT.



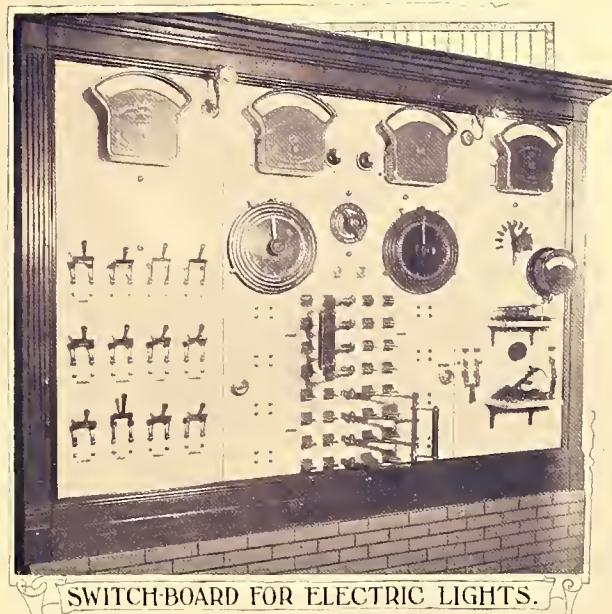
H. H. ELLIOTT & CO.
NOWLEDGE of manufacturing and an appreciation of the elements involved would not be at all complete without a description of that department which furnishes, as it were, the vital energy to run

the entire immense organism, with its throbbing and complex machinery. A factory of any kind is like a human monster, taking into its capacious stomach surprising quantities of raw material and digesting and assimilating it in harmonious accord with the requirements of its circulation. The power which keeps the great machine going lies in the basement of the building at the corner of Fifth and Commerce Streets. A portion of this subterranean department is devoted to waste-paper bins, which receive the cuttings and other refuse material of the floors above. Here is also stored the binders' boards, used in such large quantities in making the covers of blank-books. From twenty-five to thirty tons of the material are kept on hand, to supply what is a constant demand. These boards are cut to regular sizes, for seasoning prior to use, in this part of the building, special cutting machinery



being provided for the purpose of a construction massive enough to resist the strain entailed in handling material of such tough and resisting character.

The remainder of the basement, which extends out into the street beneath the pavement on the two environing streets, is devoted to the Power Department and Lighting Plant, which it has been the aim to make as perfect and complete as modern engineering would permit. Two sets of B. & W. Boilers, located



beneath the side-walk, are used, either of which has capacity to run the entire plant. The coal is weighed as it is delivered, and then deposited upon a level with the boiler-room floor. A Green engine of 120 horse-power furnishes the manufacturing departments with all the power required in running their machinery. For heating, however, a special engine is employed, used for that purpose alone. The pure air is drawn through a duct from above the roof (120 feet above the street), is then heated by steam pipes and

forced through the building by a large blower, run by the source mentioned. The ventilation is thus rendered as perfect as sanitation could demand, and life in the workshops becomes pleasurable rather than burdensome, as it was under the stuffy and impure conditions formerly generated in factories.

For lighting the building, two S. & H. 600-light dynamos are used, one of which is driven by a belt from the power shaft, while the other is directly coupled to an engine of 60 horse-power capacity. Machinery for elevators, pumps for the water supply, and pumps for fire purposes absorb the balance of the space.

A conspicuous and artistic feature of the lighting equipment is a switchboard, of imposing proportions and beautiful finish. Made of marble, handsomely framed in oak, it stands upon an enamelled brick foundation, affording ready access. The illumination of each floor, stairway, and fire escape is under direct control from this point.

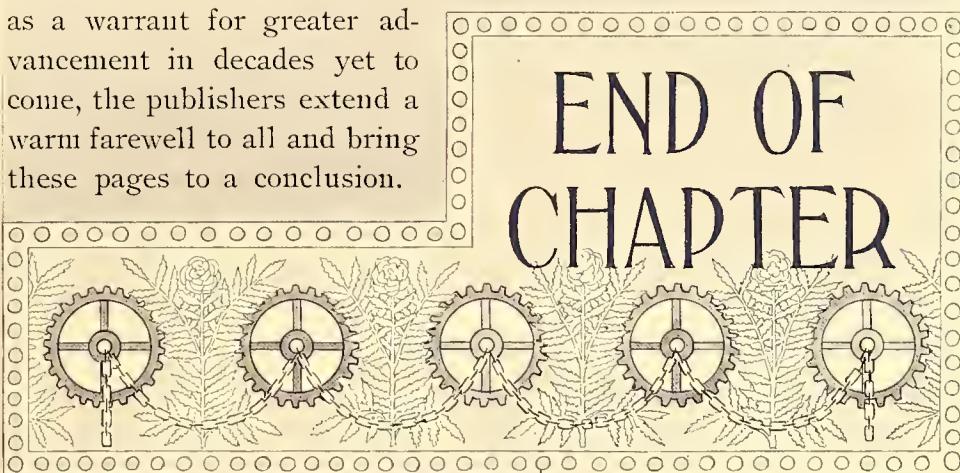
The entire steam plant, both of the factory and of the main building at No. 529 Market Street, is under the direction of the Chief Engineer, M. McSorley, who has been in the employ of the company for twenty-six years, and from whom an efficient corps of assistants is provided.

* * * * *

At the outset of the chapters comprising this little book, the writer proposed not so much to give a recital of bare details as to carry the reader with him in a practical talk about the different stages of manufacturing in which the William Mann Company is engaged. It has been the aim to combine some adequate knowledge of broad processes with a description of an establishment in which those processes are carried to completion. Any method of treatment less impersonal would have been equally distasteful to the editor as well as the publishers, whose desire is solely to present this little work as a testimonial of their regard to those

with whom they have business dealings. With the kindest wishes from them to the recipients of the book, and a parting hope that the record made by "Fifty Years of Progress" will be regarded as a warrant for greater advancement in decades yet to come, the publishers extend a warm farewell to all and bring these pages to a conclusion.

END OF CHAPTER



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